Working with Prairie Birds:

Work Step #3. Following is a description of eleven prairie birds. After each description are two blank lines. On the first line, write down what type of feeder each bird is. The choices are *herbivore, omnivore,* and *carnivore.* On the second line, write down the location of each bird's nest.

Work Step #4. On page 30, the eleven birds are drawn. It is your job to label each bird in the space provided. Be sure to use the clues written beside each drawing.

mourning dove: 12". This handsome dove is mostly gray to brown with white spots on its tail. It feeds on the seeds of plants and builds its nest in shrubs or trees at the edge of the prairie. herbivore
Shrubs or trees

upland sandpiper: 11½". This brown bird has a whitish belly streaked with black. When not flying or tending to its nest on the ground, it commonly perchs on fenceposts. It feeds on insects, worms and plant seeds. omnivore ground

Canada goose: 16-25". This goose has a black head and neck, with a white patch or "chinstrap" running into the side of the head. The Canada goose feeds on parts of plants, especially roots, and builds its nest on the ground near water. herbivore ground near water

dickcissel: 6-7". The male dickcissel has a black bib on a yellow chest; the female is much paler in color and has just a touch of yellow on the chest. The dickcissel feeds on insects, plant parts and nests near or on the ground. omnivore on or near ground

killdeer: 9-11". This brown-backed, white-bellied bird is told by two black breast bands and its loud shrill call kill-dee, kill-dee. The killdeer feeds on insects, worms and snails and makes its nest in a small hollow on the ground. carnivore small hollow on ground

eastern meadowlark: The meadowlark feeds on insects and plant parts and builds its nest on the ground. (see word picture on page 27 for description)
omnivore ground

prairie chicken: 17-18". This bird is brown with dark bars. The male is told by orange air sacs on the side of the neck. During courtship, the male inflates those air sacs and then releases the air, causing a hollow oo-loo-woo sound known as "booming". The prairie chicken feeds on insects and plant parts and nests on the ground. omnivore ground

loggerhead shrike: 9". This gray, black and white bird is told by its black mask. The loggerhead shrike preys only upon animals including insects, reptiles and amphibians, birds and small mammals. Lacking sharp talons to hold down its food, the shrike hangs the body of its pray on a thorn or fence barb so it can tear away at the flesh with its bill. The loggerhead shrike builds its nest in a shrub or small tree. carnivore
Shrub or small tree

turkey vulture: 26-32". This black bird soars on wings that spread 6 feet. At close range, one can see the turkey-like red head on the adult vulture. The vulture is the clean-up bird of the prairie, feeding upon already dead animals. The vulture nests on the ground. carnivore ground

short-eared owl: 13-17". This streaked brown owl is named for the two short tufts of feathers located on its forehead. It preys upon insects, amphibians/reptiles, birds and small mammals and nests on the ground. carnivore ground

marsh hawk: 17½-24". The female marsh hawk is streaked brown; the male, gray; but the best clue for identifying either sex is white rump. This slim hawk hunts low over the ground for insects, reptiles/amphibians, birds and small mammals. It nests on the ground. carnivore ground

Prairie Birds

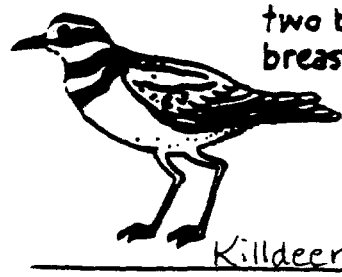
black bib on yellow chest

Dickcissel

black head and neck. "chinstrap" on side of head

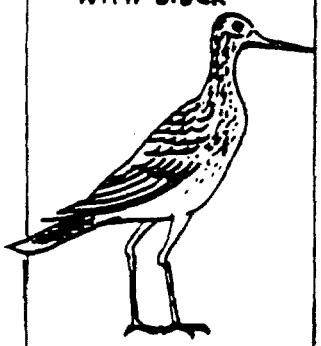
Canada Goose

two black breast bands



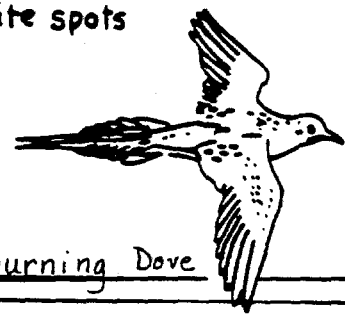
Killdeer

brown, whitish. belly streaked with black



Upland Sandpiper

brown, pointed tail with white spots



Mourning Dove

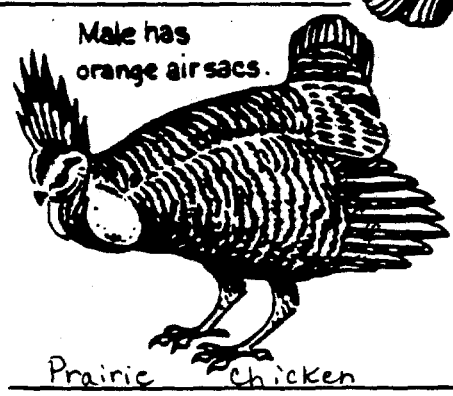
black. 6 foot wing span

Turkey Vulture

brown, yellow throat and breast, black V crosses breast

Eastern Meadowlark

Male has orange air sacs.



Prairie Chicken

streaked brown, 13-17" tall

Short-eared Owl

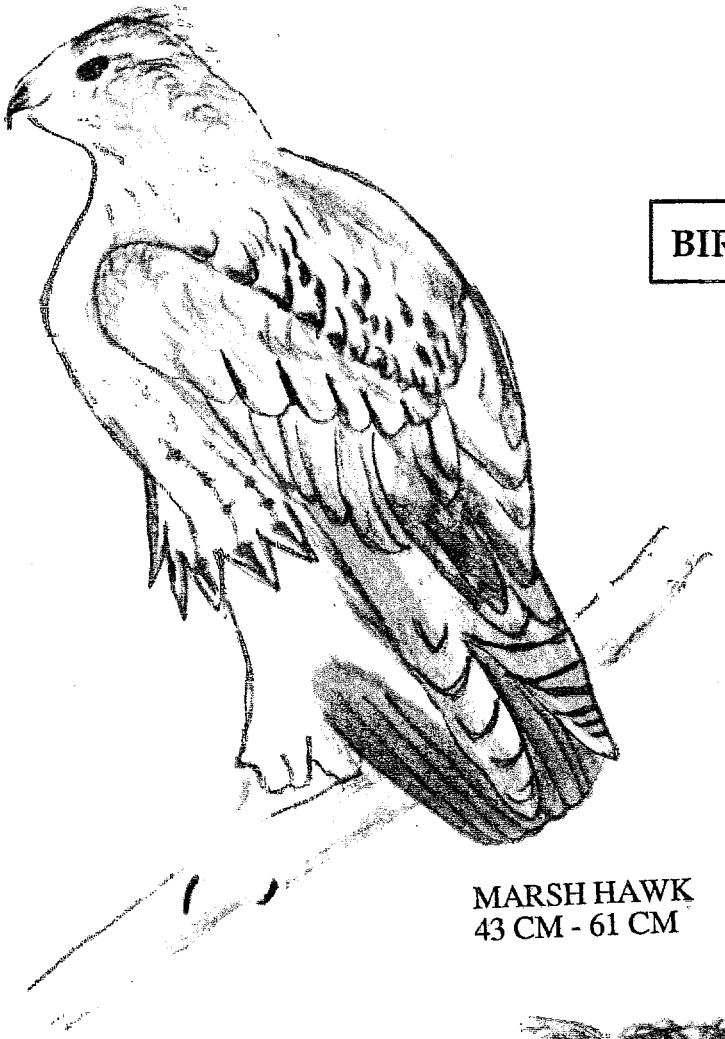
gray, black and white, black mask

Loggerhead Shrike

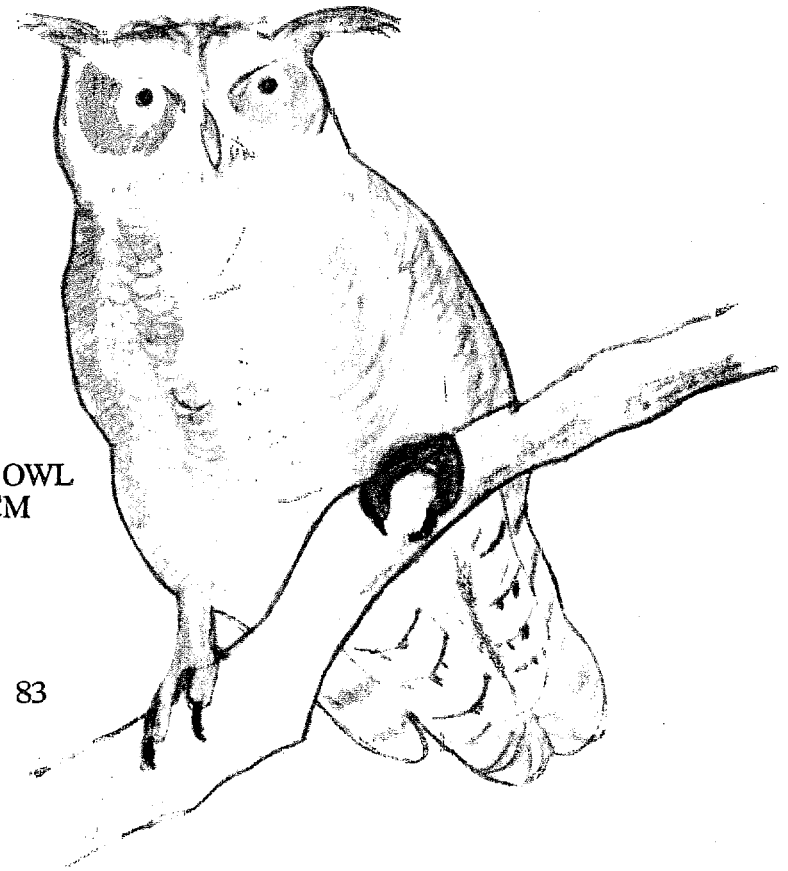
streaked brown or gray. white rump

Marsh hawk

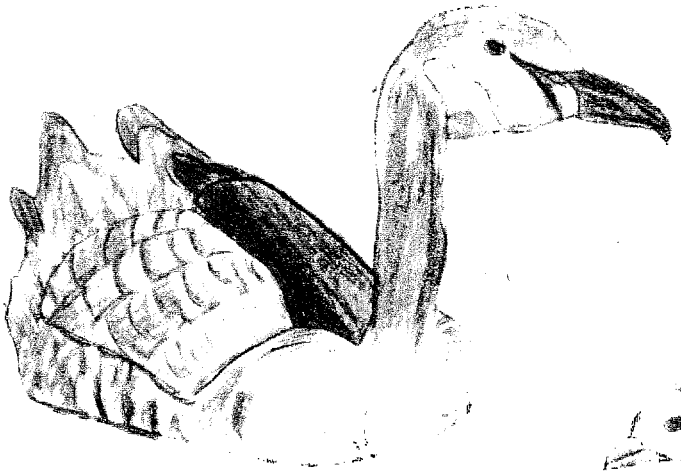
BIRD IDENTIFICATION CARD



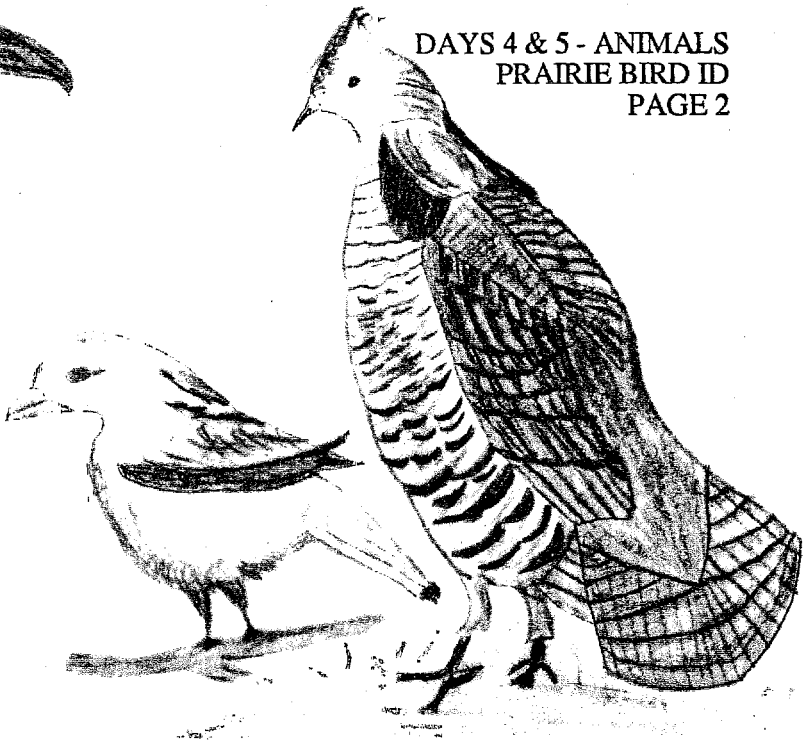
MARSH HAWK
43 CM - 61 CM



SHORT-EARED OWL
33 CM - 43 CM



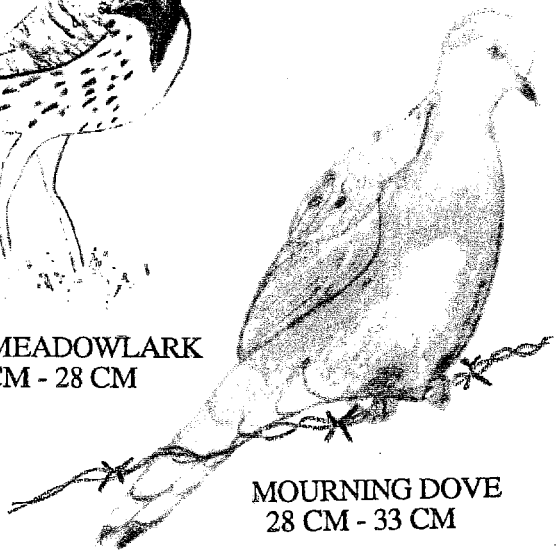
CANADA GOOSE
41 CM - 64 CM



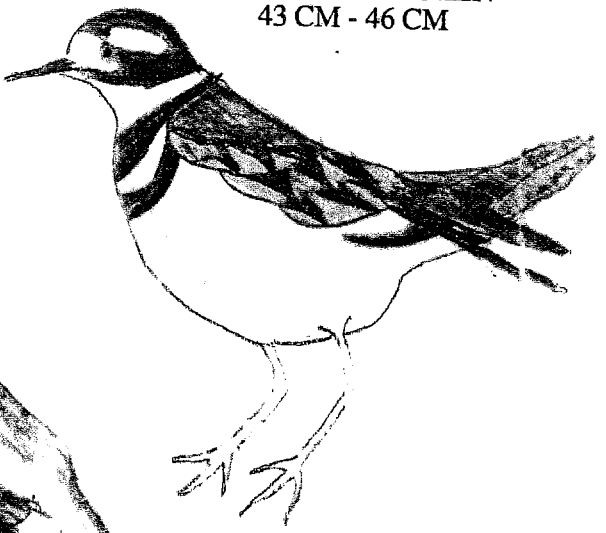
DICKCISSEL
15 CM - 18 CM

PRAIRIE CHICKEN
43 CM - 46 CM

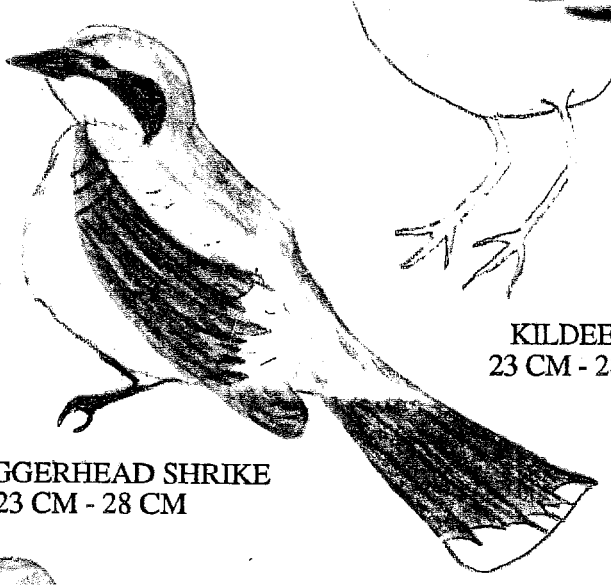
TERN MEADOWLARK
23 CM - 28 CM



MOURNING DOVE
28 CM - 33 CM

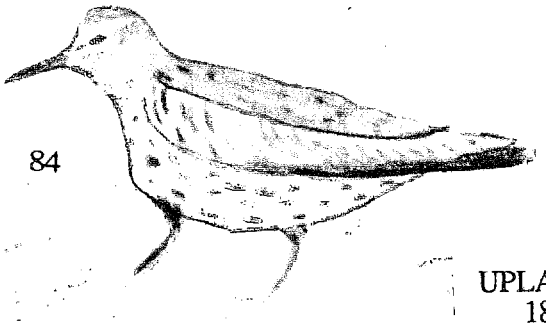


KILDEER
23 CM - 28 CM



LOGGERHEAD SHRIKE
23 CM - 28 CM

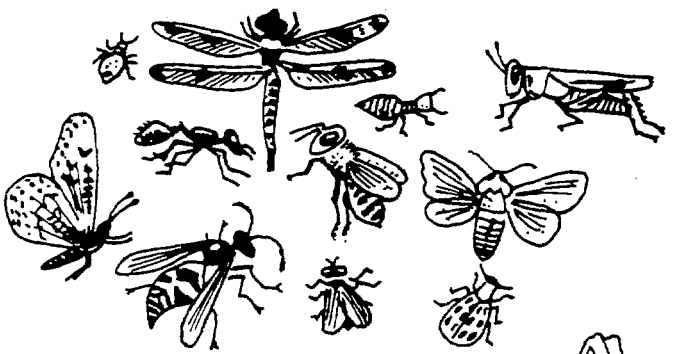
TURKEY VULTURE
66 CM - 81 CM



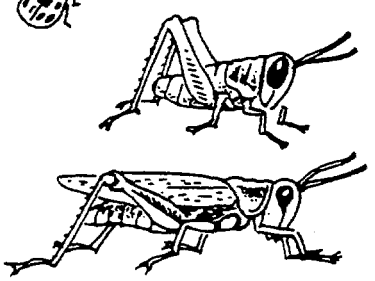
UPLAND SANDPIPER
18 CM - 20 CM

Prairie Insects

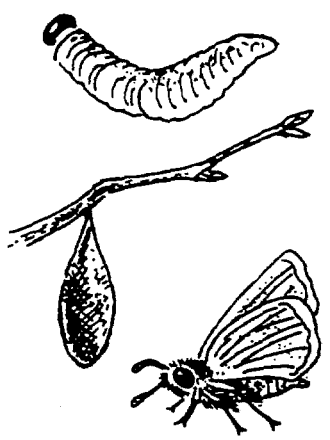
The prairie is home for millions of insects



Most common prairie insects are dragonflies, wasps, ants, bees, grasshoppers, termites beetles, aphids, butterflies, moths, and flies.



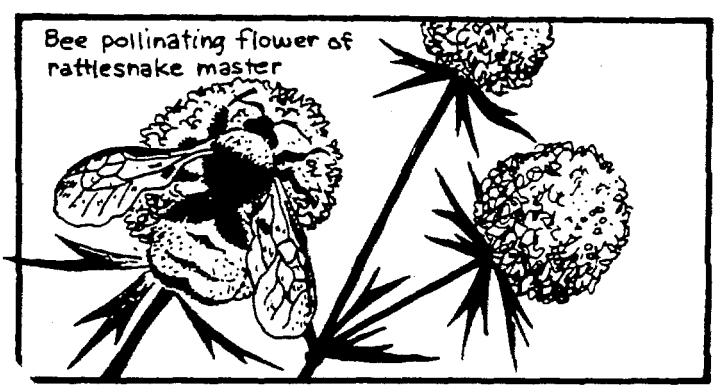
Insects exist on the prairie in many forms, first as immature forms and later as adults. Immature insects are known as nymphs or larva. Nymphs, such as this immature grasshopper, look rather like their parents and grow by a series of molts until they reach the size of the adult. The development of a nymph into an adult is called an incomplete metamorphosis.



Larvae, such as this least skipper caterpillar, look nothing like their parents. Larvae also grow by a series of molts but then they rest as a complete metamorphosis changes them into adults. This resting period is known as the pupal stage of growth. For its pupal stage, the least skipper caterpillar spins a protective cocoon in which it changes into a least skipper butterfly.

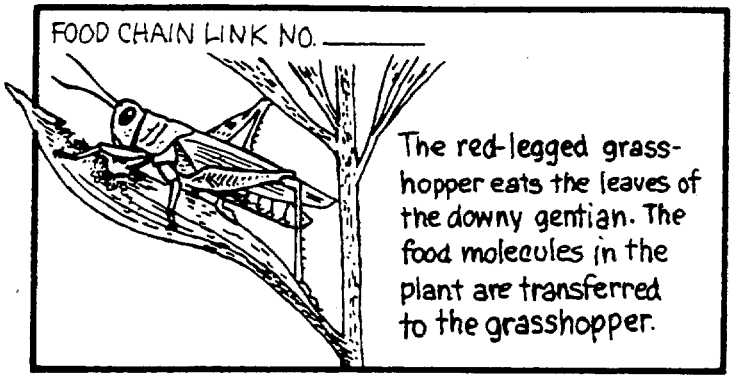
The Role of Insects in the Prairie Ecosystem:

The prairie ecosystem could not exist without the important work performed by insects. The four most important jobs performed by insects are 1) pollination, 2) food processing, 3) decomposition of dead plant and animal materials and 4) soil tillage. To understand how insects carry out these four jobs on the prairie, study the four case examples below.



Case Example 1: The gold and black bumble bee demonstrates how insects help carry out *pollination*. Pollination is the process whereby either wind or insects carry *pollen* from the male part of flowers to the female part of other flowers. The pollen fertilizes the seeds inside the ovary of the female flowers and they

begin to ripen and mature. Wind carries the pollen of grasses but most forbs depend upon insects to move their pollen about the prairie. In the case of the bumble bee, individual bees are attracted to the showy and fragrant flowers of forbs. When a bee settles into the flower, it begins feeding on the nectar and/or pollen put out by the flower. Some of the pollen rubs off onto the hairy body of the bee. When that same bee visits another flower, some of the pollen from the first flower, rubs off onto the second. This is how the bumble bee carries pollen from one plant to another. Without the help of the bumble bee and other insects that feed on pollen and nectar, pollination would not be possible and plants would not be able to reproduce. The miracle is that both plants and insects benefit.



Case Example 2: The red-legged grasshopper demonstrates how insects process food on the prairie. You learned on page 14 that the forbs and grasses are the primary producers of food energy. The red-legged grasshopper makes direct use of that energy by eating grasses and the leaves of forbs. With the plant food it eats, this reddish-green grasshopper builds the tissues in its body. Eventually, the grasshopper will be eaten by another animal, maybe an amphibian, like the American toad. When that happens, the food energy that was once in the plant parts the grasshopper ate, is transferred to the toad. This is how the grasshopper turns the tissues of plants into an animal food supply that can be used by other members of the ecosystem. You could say that the grasshopper's work is to be eaten by other animals. Because the grasshopper and many other insects process plant food into animal food, they are said to be *the primary consumers* in the ecosystem. It is important to note, however, that some insects prey upon other insects. The praying mantis, for example, is a fierce predator of other insects. Thus, some insects are not primary consumers, but rather *secondary consumers.*

Case Example #3: The American carrion beetle, a small black beetle, demonstrates how insects help with the decomposition of dead plant and animal material. The adult beetle flies about the prairie and locates a dead animal by scent. The adult lands beside the body and crawls into the soil beneath it and lays eggs. The eggs hatch in a few days and the larvae feed on the carcass until nothing is left but important nutrient elements. These nutrient elements are then stored in the soil until they are taken into the roots of plants. In this way the carrion beetle and all other scavenger insects help with the decomposition of dead material. In addition to cleaning up rotting debris, these insects help recycle nutrient elements.

Case Example #4: The mound ant, a tiny black ant, demonstrates how insects till or plow the soil. Mound ants burrow out elaborate tunnels in the soil which lead to galleries. In these galleries, the ants live in a colony which includes a queen ant, and worker ants who attend to the larvae. The mound ants and all other insects that burrow into the soil, help keep the soil loose enough to absorb water and air.

Working With Prairie Insects:

Work Step #1: Using the word picture at the top of page 85as a guide, name the most common insects of the prairie. Explain how nymphs mature into adults and how larva mature into adults.

Work Step #2: Written below are descriptions of ten insects. Following the description of each insect are the numbers 1, 2, 3, 4. Those numbers refer to the four most important tasks insects perform in the prairie ecosystem: 1-*pollination* (as demonstrated by the bumble bee in Case Example #1), 2-*food processing* (as demonstrated by the red-legged grasshopper in Case Example #2), 3-*decomposition of dead plant and animal materials* (as demonstrated by the carrion beetle in Case Example #3) and 4-*soil tillage* (as demonstrated by the mound ant in Case Example #4) Judging from what the description says about each insect, circle the number of each task you believe that insect carries out. If both the larva and the adult are described, make your judgement based upon the activities of both. To help you get started, consider this clue. All of the insects are eventually eaten by some other animal. Thus, it is correct to say that all the insects perform task 2.

Work Step #3: On page 87 are illustrations of 14 insects, the ten described and the four used in the case examples. Using the clues provided beside each illustration, label each insect.

flesh fly: This black fly has gray markings. Its larva feeds on decaying vegetation and dead animal parts. The adult feeds on the nectar of plant flowers. 1. 2. 3. 4.

robber fly: This brown fly is a fierce predator. It can capture another insect on the wing, drop to the ground, and suck the prey dry in a matter of seconds. The larva of the robber fly is also a predator, feeding on tiny insects in the soil. 1. 2. 3. 4.

least skipper butterfly: This golden brown butterfly sips nectar from flowers and also eats decaying plant materials lying in the prairie soil. 1. 2. 3. 4.

painted lady butterfly: This beautiful butterfly has orange to gray wings that are marked by splashes of pink, black markings and white spots. In search of nectar, this butterfly visits the flowers of prairie forbs. 1. 2. 3. 4.

spotted cucumber beetle: This greenish-yellow beetle is covered with eleven black spots. Its larva feeds on the dead roots of grasses and forbs. The adult feeds on the leaves and flowers of forbs. 1. 2. 3. 4.

digger wasp: This hairy, black wasp has reddish-orange markings on its abdomen. The adult wasp feeds on the nectar of flowers. The female adult burrows into the soil in search of beetle larvae, sometimes tunneling a few feet deep. Upon finding a beetle larva, it stings it and then digs a tiny cell around the body. The adult then lays one egg on the back of the larva. When the wasp larva emerges, it feeds on the body of the beetle larva.
1. 2. 3. 4.

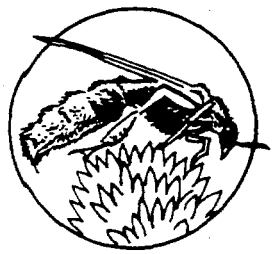
aphids: This small, pear-shaped insect sucks the juices of plant stems and leaves. The aphid discharges a clear, watery liquid, called honeydew. Ants feed on this honeydew. 1. 2. 3. 4.

praying mantis: The long fore legs of this green insect give the impression it is praying. The truth is that this insect does another type of preying, upon grasshoppers, crickets, bees, caterpillars, and flies. The nymph also preys upon other animals, including plant lice.
1. 2. 3. 4.

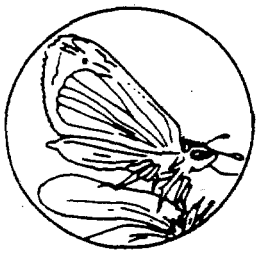
least skipper caterpillar: This insect is grass-green with a dark brown head. It slowly works its way up and down grasses, munching on the tender shoots as it goes. 1. 2. 3. 4.

tumblebug: The ¾" dull black adult is sometimes marked with a greenish or coppery tinge. The male and female adult roll a ball of animal dung across the prairie floor. After the dung is pressed and round, the adults dig a tunnel in the soil and drag the ball of dung into it. The female then lays an egg on the dung. The larva hatches later and feeds on the dung until it develops into an adult.

Prairie Insects



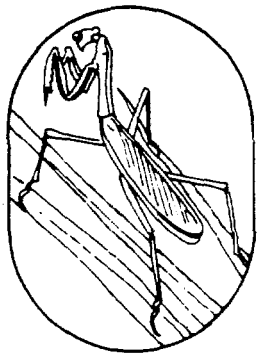
hairy and black, reddish orange markings



golden brown, sips flower nectar

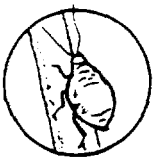
marked by splashes of pink, black and white

black and gold, important in pollination

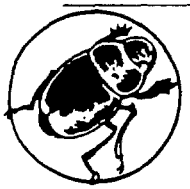


forelegs look like praying hands

brown fly, fierce predator



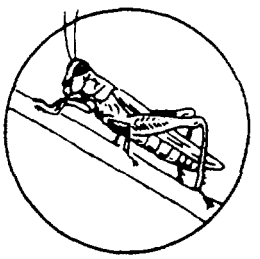
pear shaped, discharges honeydew



dull black, buries dung

has 11 black spots

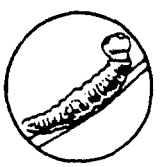
tiny black ant, burrows tunnels



one inch long, reddish green

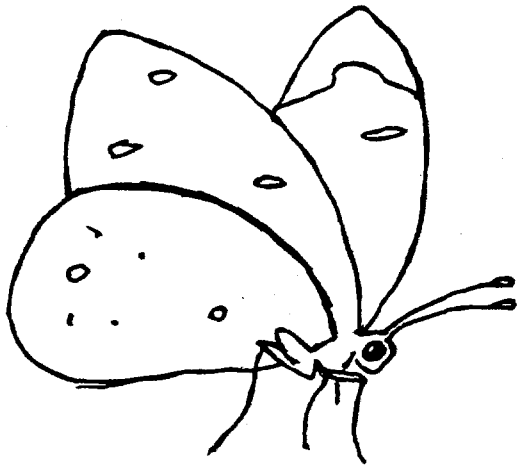
black fly with gray markings

small black beetle



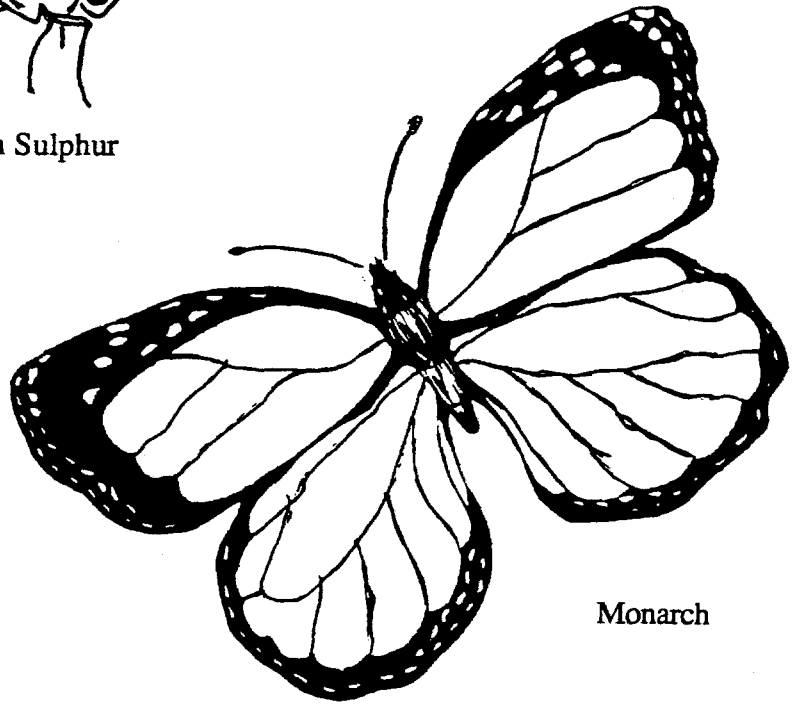
grass green, dark brown head

LIFE-SIZE COLORING SHEET



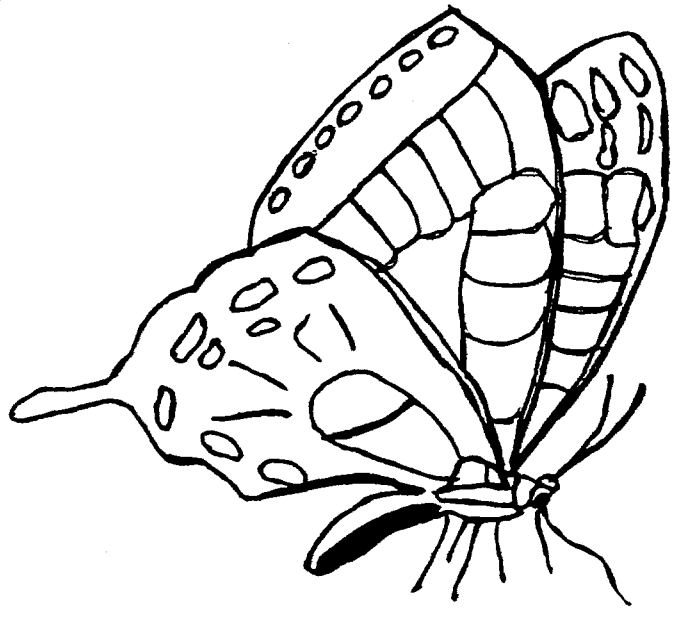
Common Sulphur

Dakota Skipper

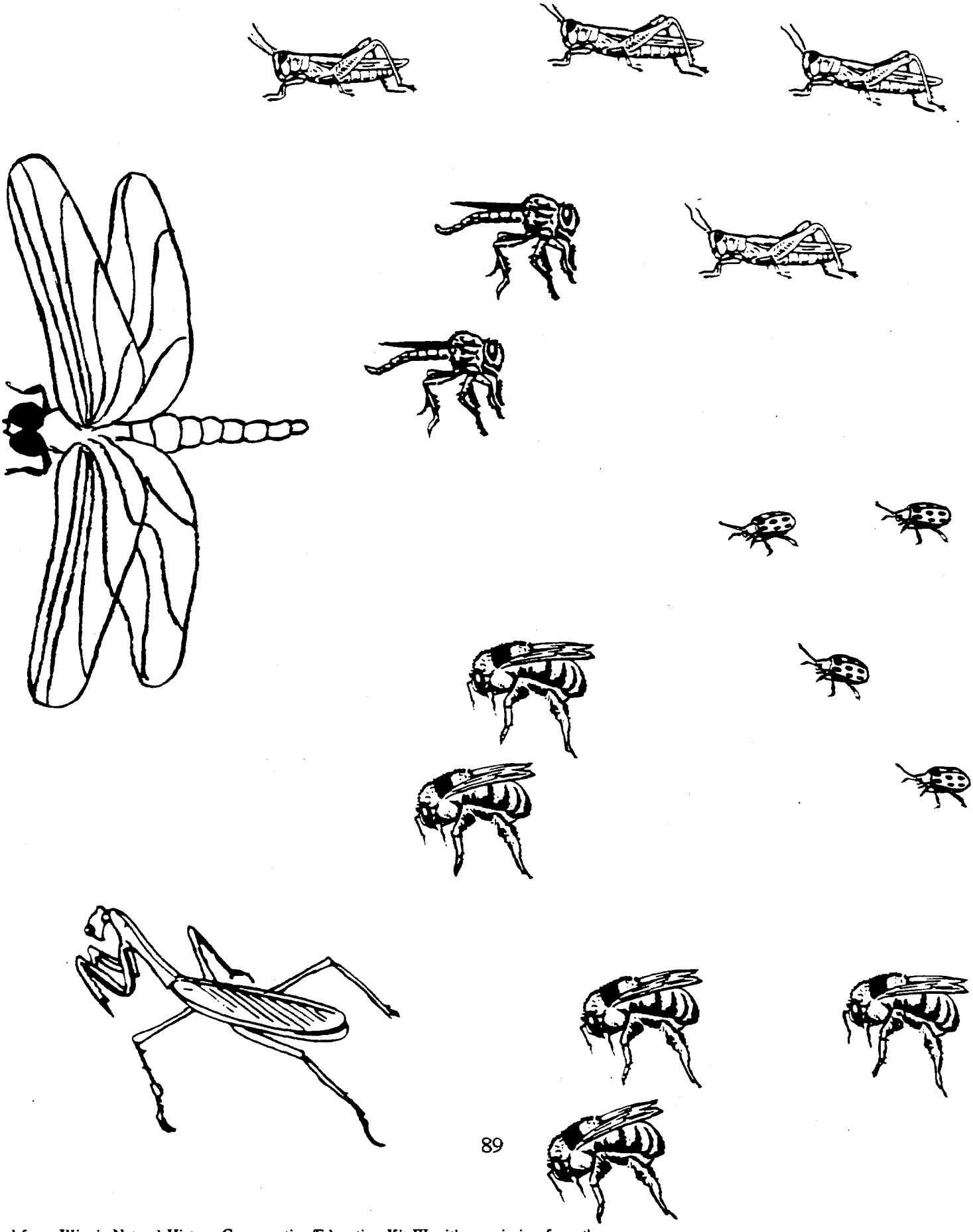


Monarch

Painted Lady

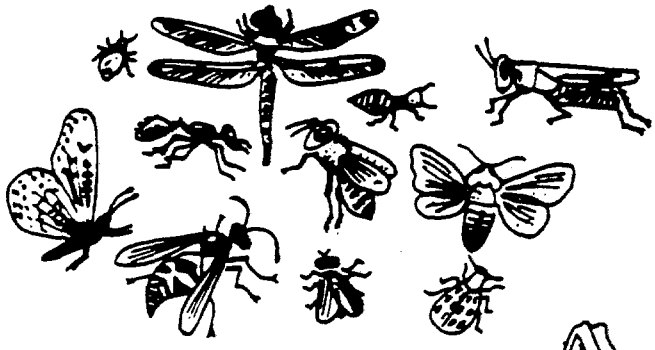


Tiger Swallowtail



Prairie Insects

The prairie is home for millions of insects



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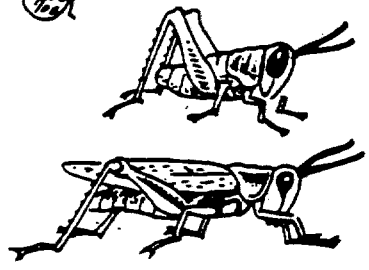

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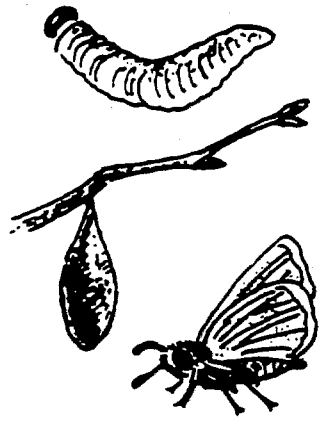

Larvae, such as this least skipper caterpillar, look nothing like their parents. Larvae also grow by a series of molts but then they rest as a complete metamorphosis changes them into adults. This resting period is known as the pupal stage of growth. For its pupal stage, the least skipper caterpillar spins a protective cocoon in which it changes into a least skipper butterfly.

The Role of Insects in the Prairie Ecosystem:

The prairie ecosystem could not exist without the important work performed by insects. The four most important jobs performed by insects are 1) pollination, 2) food processing, 3) decomposition of dead plant and animal materials and 4) soil tillage. To understand how insects carry out these four jobs on the prairie, study the four case examples below.

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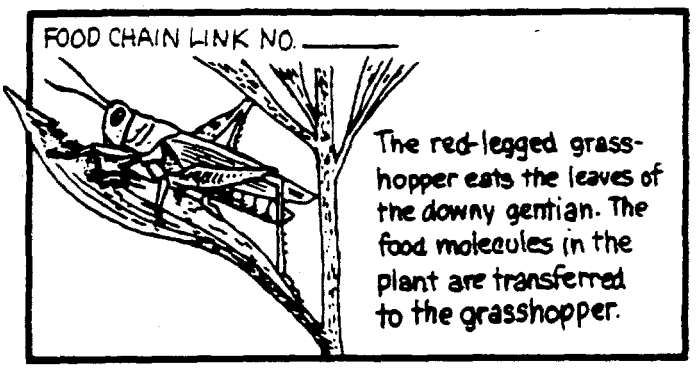
begin to ripen and mature. Wind carries the pollen of grasses but most forbs depend upon insects to move their pollen about the prairie. In the case of the bumble bee, individual bees are attracted to the showy and fragrant flowers of forbs. When a bee settles into the flower, it begins feeding on the nectar and/or pollen put out by the flower. Some of the pollen rubs off onto the hairy body of the bee. When that same bee visits another flower, some of the pollen from the first flower, rubs off onto the second. This is how the bumble bee carries pollen from one plant to another. Without the help of the bumble bee and other insects that feed on pollen and nectar, pollination would not be possible and plants would not be able to reproduce. The miracle is that both plants and insects benefit.



Case Example 2: The red-legged grasshopper demonstrates how insects process food on the prairie. You learned on page 14 that the forbs and grasses are the primary producers of food energy. The red-legged grasshopper makes direct use of that energy by eating grasses and the leaves of forbs. With the plant food it eats, this reddish-green grasshopper builds the tissues in its body. Eventually, the grasshopper will be eaten by another animal, maybe an amphibian, like the American toad. When that happens, the food energy that was once in the plant parts the grasshopper ate, is transferred to the toad. This is how the grasshopper turns the tissues of plants into an animal food supply that can be used by other members of the ecosystem. You could say that the grasshopper's work is to be eaten by other animals. Because the grasshopper and many other insects process plant food into animal food, they are said to be *the primary consumers* in the ecosystem. It is important to note, however, that some insects prey upon other insects. The praying mantis, for example, is a fierce predator of other insects. Thus, some insects are not primary consumers, but rather *secondary consumers*.

Case Example #3: The American carrion beetle, a small black beetle, demonstrates how insects help with the decomposition of dead plant and animal material. The adult beetle flies about the prairie and locates a dead animal by scent. The adult lands beside the body and crawls into the soil beneath it and lays eggs. The eggs hatch in a few days and the larvae feed on the carcass until nothing is left but important nutrient elements. These nutrient elements are then stored in the soil until they are taken into the roots of plants. In this way the carrion beetle and all other scavenger insects help with the decomposition of dead material. In addition to cleaning up rotting debris, these insects help recycle nutrient elements.

Case Example #4: The mound ant, a tiny black ant, demonstrates how insects till or plow the soil. Mound ants burrow out elaborate tunnels in the soil which lead to galleries. In these galleries, the ants live in a colony which includes a queen ant, and worker ants who attend to the larvae. The mound ants and all other insects that burrow into the soil, help keep the soil loose enough to absorb water and air.

Working With Prairie Insects:

Work Step #1: Using the word picture at the top of page 90 as a guide, name the most common insects of the prairie. Explain how nymphs mature into adults and how larva mature into adults.

Work Step #2: Written below are descriptions of ten insects. Following the description of each insect are the numbers 1, 2, 3, 4. Those numbers refer to the four most important tasks insects perform in the prairie ecosystem: 1-*pollination* (as demonstrated by the bumble bee in Case Example #1), 2-*food processing* (as demonstrated by the red-legged grasshopper in Case Example #2), 3-*decomposition of dead plant and animal materials* (as demonstrated by the carrion beetle in Case Example #3) and 4-*soil tillage* (as demonstrated by the mound ant in Case Example #4). Judging from what the description says about each insect, circle the number of each task you believe that insect carries out. If both the larva and the adult are described, make your judgement based upon the activities of both. To help you get started, consider this clue. All of the insects are eventually eaten by some other animal. Thus, it is correct to say that all the insects perform task 2.

Work Step #3: On page 92 are illustrations of 14 insects, the ten described and the four used in the case examples. Using the clues provided beside each illustration, label each insect.

flesh fly: This black fly has gray markings. Its larva feeds on decaying vegetation and dead animal parts. The adult feeds on the nectar of plant flowers.
(1.) 2. (3.) 4.
Adult Larva

robber fly: This brown fly is a fierce predator. It can capture another insect on the wing, drop to the ground, and suck the prey dry in a matter of seconds. The larva of the robber fly is also a predator, feeding on tiny insects in the soil. 1. 2. (3.) 4.

least skipper butterfly: This golden brown butterfly sips nectar from flowers and also eats decaying plant materials lying in the prairie soil. (1.) 2. (3.) 4.

painted lady butterfly: This beautiful butterfly has orange to gray wings that are marked by splashes of pink, black markings and white spots. In search of nectar, this butterfly visits the flowers of prairie forbs. (1.) 2. 3. 4.

spotted cucumber beetle: This greenish-yellow beetle is covered with eleven black spots. Its larva feeds on the dead roots of grasses and forbs. The adult feeds on the leaves and flowers of forbs. 1. (2.) (3.) 4.
Adult Larva

digger wasp: This hairy, black wasp has reddish-orange markings on its abdomen. The adult wasp feeds on the nectar of flowers. The female adult burrows into the soil in search of beetle larvae, sometimes tunneling a few feet deep. Upon finding a beetle larva, it stings it and then digs a tiny cell around the body. The adult then lays one egg on the back of the larva. When the wasp larva emerges, it feeds on the body of the beetle larva.
(1.) (2.) 3. 4.
Adult Larva

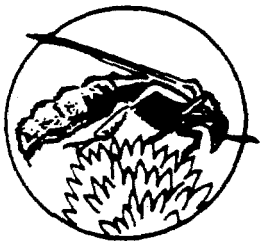
aphids: This small, pear-shaped insect sucks the juices of plant stems and leaves. The aphid discharges a clear, watery liquid called honeydew. Ants feed on this honeydew. 1. (2.) 3. 4.

praying mantis: The long fore legs of this green insect give the impression it is praying. The truth is that this insect does another type of preying, upon grasshoppers, crickets, bees, caterpillars, and flies. The nymph also preys upon other animals, including plant lice.
1. (2.) 3. 4.

least skipper caterpillar: This insect is grass-green with a dark brown head. It slowly works its way up and down grasses, munching on the tender shoots as it goes. 1. (2.) 3. 4.

tumblebug: The ¾" dull black adult is sometimes marked with a greenish or coppery tinge. The male and female adult roll a ball of animal dung across the prairie floor. After the dung is pressed and round, the adults dig a tunnel in the soil and drag the ball of dung into it. The female then lays an egg on the dung. The larva hatches later and feeds on the dung until it develops into an adult. 1. 2. (3.) 4.

Prairie Insects



Digger Wasp

hairy and black. reddish orange markings

Least Skipper Butterfly

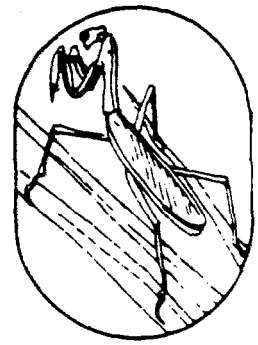
golden brown, sips flower nectar

Painted Lady Butterfly

marked by splashes of pink, black and white

Bumble bee

black and gold. important in pollination

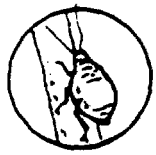


Praying Mantis

forelegs look like praying hands

Robber fly

brown fly, fierce predator



Aphid

pear shaped. discharges honeydew

Tumble bug

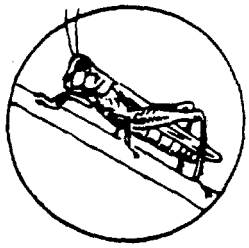
dull black, buries dung

Spotted Cucumber Beetle

has 11 black spots

Mound Ant

tiny black ant, burrows tunnels



Red-legged Grasshopper

one inch long. reddish green

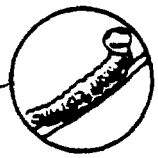
Flesh Fly

black fly with gray markings

American Carrion Beetle

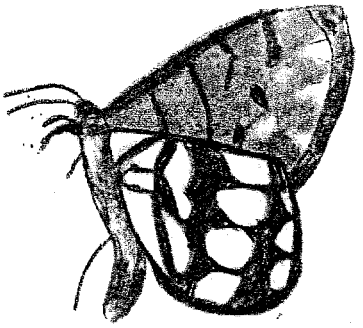
small black beetle

Least Skipper Caterpillar



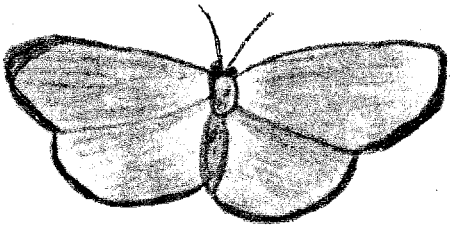
grass green, dark brown head

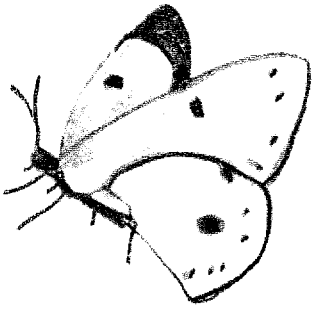
Olympia Marblewing

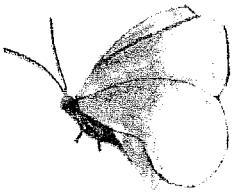


Regal Fritillary

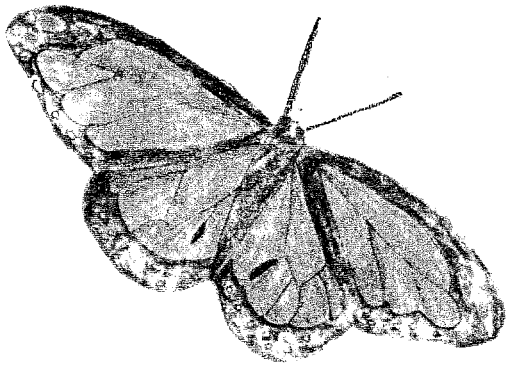
INSECT IDENTIFICATION CARD





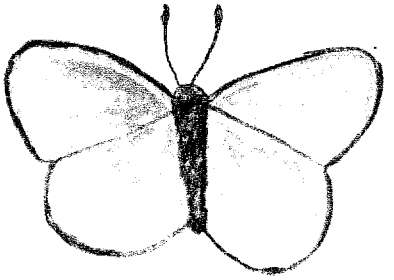


Common Sulphur

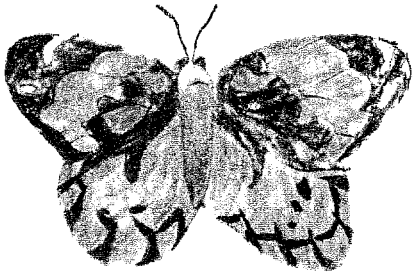


Monarch

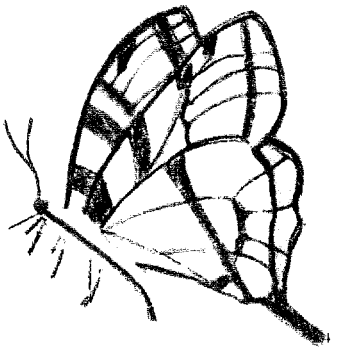
Dakota Skipper



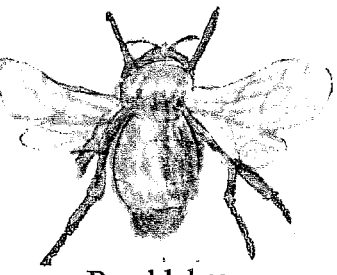
Prairie Ringlet



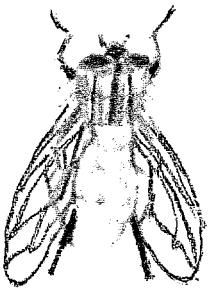
Painted Lady



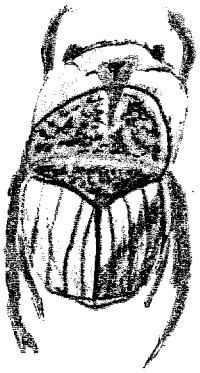
Tiger Swallowtail



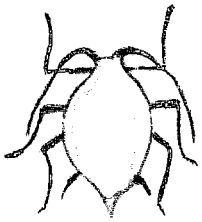
Bumblebee
3 cm - 4 cm



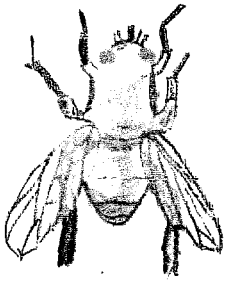
Flesh Fly
1 cm



Tumblebug
2 cm



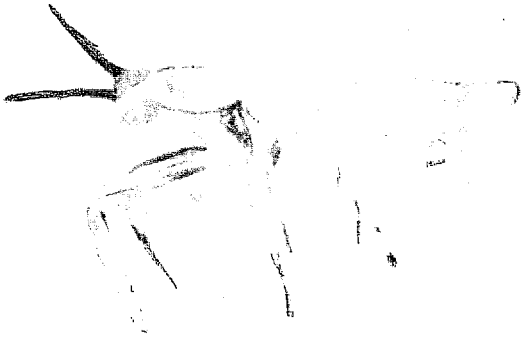
Aphids
.3 cm



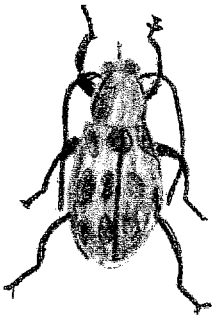
Robber Fly
1 cm

Grasshopper

Digger Wasp
3 cm



Praying Mantis
5 cm - 8 cm



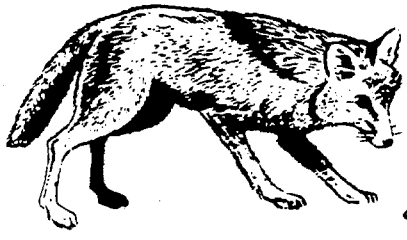
Spotted Cucumber
3 cm

Prairie Mammals

Prairie mammals vary greatly in size even though the largest ones have vanished from Illinois.

Bison and elk were once the largest mammals on the Illinois prairie. During settlement of Illinois, however, huge numbers of bison and elk were killed by people and the prairie was plowed up and used as farmland and cities. Without a safe habitat to live in, the mighty bison and graceful elk vanished from Illinois.

Small animals like the prairie vole and Franklin's ground squirrel are the most numerous on the prairie. Regardless of size, each mammal species has its own special place to live and role to play in the prairie ecosystem. That special place and role is the species niche in the ecosystem.



Medium-sized animals such as the coyote, fox and badger are the big mammals on the prairie that remains in Illinois.

The Role of Mammals in the Prairie Ecosystem:

Mammals are vital to the flow of food energy in the prairie ecosystem. Some mammals like the badger, coyote and red fox are most important as predators because they keep insect and rodent populations under control. Other mammals like the cottontail rabbit and prairie vole are most important as sources of food for other members of the ecosystem. Some mammals such as the little brown bat and Franklin's ground squirrel are important as both predators and prey.

You learned in the word picture at the top of this page the meaning of the word "niche". The niche of an animal is very important because it guarantees each species a place to live and food to eat. With each species having its own niche, there is less competition between species for space and food. If an animal loses its niche, it cannot survive.

FOOD CHAIN LINK NO. _____

The Franklin's ground squirrel captures an American toad. Food energy is transferred from the toad to the ground squirrel.

95 The word picture at the top of this page explains what happened to bison and elk once they lost their niches in Illinois.

To define the niche of an animal, one must consider where, when and how it travels, what it eats and what eats it, when and where its young are born and what defenses it has against its predators. Although the niches of some species may be somewhat similar, they are never exactly the same. This gives each species its own special chance for survival. Let's look at the niches of the badger and red fox by studying the word pictures below.

Working with Prairie Mammals

Work Step #1. Explain why some mammals are most important as sources of food for other animals? Explain why some are most important as predators. Name two mammals that are important both as food sources and predators.

Work Step #2. On the blank lines that follow, describe the niche of the badger.

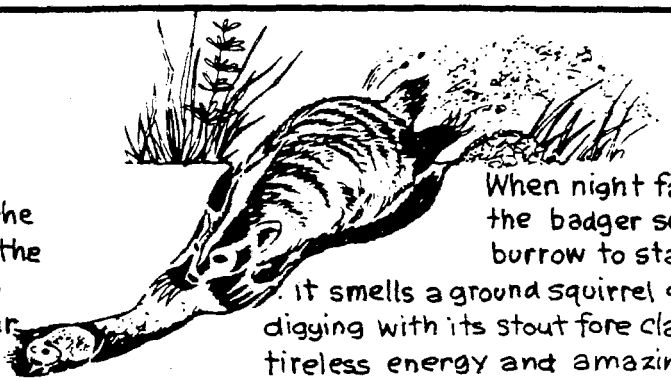
Where live _____ Where nest _____
When active_____ How catch food_____
food _____ Predators _____

Now describe the niche of the red fox. Where rest during day _____
when active_____
where travel _____
how catch food _____ food _____
where den _____
how many litters _____ defense _____
predators_____

How does the niche of the badger compare to the niche of the red fox? Are they active at the same time? _____ Do they stay in the same place on the prairie during the day? _____ Do they catch their food in the same way? _____ Do you think the fox could survive if it had to dig for its food as the badger does? _____ Do you think the badger could survive if it had to stalk and pounce on its prey as the fox does? _____

Work Step #3. On page 97 are descriptions for 10 mammals. Following four of the descriptions are

Short bodied and short legged, the badger lives in burrows beneath the ground. During spring it uses its burrow as a nest chamber to bear and raise its young.

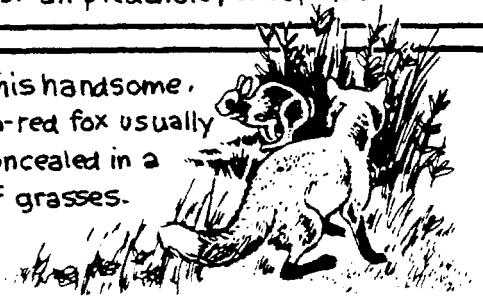


When night falls on the prairie, the badger surfaces from its burrow to stalk its prey. If it smells a ground squirrel or mouse, it begins digging with its stout fore claws. Because of its tireless energy and amazing speed, it can catch most of its prey before they can escape their burrows.

Badger

With its strength and sharp teeth and claws, the badger defends itself against all predators, except man.

By day this handsome, yellowish-red fox usually sleeps concealed in a clump of grasses.



During the nighttime hours, the fox travels the prairie floor to stalk its prey, usually rabbits and mice but also birds and insects. Once prey is spotted, the fox takes slow, deliberate steps or crouches and wiggles toward it. It then rushes its victim and kills it with a bite from its powerful jaws. In summertime, the fox also feeds on the berries of plants.

Red Fox

4-9 young foxes, called "kits" are born in March and raised in an underground den.

The fox defends itself against enemies with its quick speed and cunning. It is taken by only a few predators, including man.

blank lines referring to part of the animals niche. From what you have read about that animal, fill in the blank lines.

Work Step #4. On page 98 are illustrations of the 10 mammals described. Using the clues written beside each illustration, label the mammals.

little brown bat: The main body of this brown bat is covered with fur but the tail membrane, ears and wings are nearly free of hair. During winter, this bat hibernates in caves but come spring and summer, it takes off for a variety of habitats, including prairies. The edge of a prairie is where one might expect to find a little brown bat roosting beneath the loose bark of a tree. When the sun goes down, the bat takes wing across the open prairie to snag insects. The little brown, like all bats, guides itself by means of a sonar system. As the bat flies, it squeaks out ultrasonic sounds which cannot be heard by people. The bat hears the echoes those sounds make as they hit objects, such as a tree or bush. The bat knows then to steer clear of the tree or bush. The little brown makes no nest; instead, the young bats, born in spring, cling to the breast of the female who hangs by her hind feet in any place that affords shelter. And when the female leaves to hunt for food, the young bats hang by themselves. The little brown defends itself against predators by flying skillfully and swiftly. Sometimes, however, a hawk, owl, or weasel, will prove itself master over this bat.

Where summer roost _____
When active _____
Food _____
How guide itself _____
Where nest _____
Defense _____
Predators _____

Franklin's ground squirrel: Standing 8½-9½" tall, this ground squirrel is mostly gray in color with black specks on its back. In a prairie ecosystem, the underground burrow of the Franklin's ground squirrel would most probably be at the edge, where the prairie gives way to larger brush and eventually forest. The Franklin's spends 90% of its time in this burrow, resting at night through the warm months and hibernating during the winter. During the bright daylight hours, it quietly makes its way across the prairie feeding on grasses, and wildflowers. But it can also take animal food, including toads, frogs, insects, mice, bird eggs and even young rabbits. Four to five young ground squirrels are born about mid-May and raised in a nest chamber of the burrow. Though the Franklin protects itself by sticking close to its burrow and heavy cover, it is preyed upon by many predators including hawks and badgers.

Where burrow _____ Active _____
Food _____ Location of Nest _____
Defense _____
Predators _____

prairie vole: The upper parts of this 4¾"-6" vole are mostly brownish gray and the under parts are washed with yellow or rust. Winter and summer, night and day, the prairie vole tunnels out surface runways that have been known to cover 160 feet. While traveling through these runways, usually either right at the surface of the prairie, or a few inches beneath, the vole finds bits of grasses, seeds and roots for food. These surface runways lead to deeper, underground burrows wherein the vole has a nest and storage chambers of food. Because the vole can do little to defend itself it rarely makes it past one year without being snatched by a hawk, owl or fox. Since prairie voles are so heavily preyed upon, they must reproduce quickly and in large numbers. To achieve this high rate of reproduction, the female vole produces litters of 3-6 young, throughout the year except during the coldest months. And a young female vole is ready to start a new family at the young age of 3 to 4 weeks.

Where travel _____ Food _____
Nest located _____
Defense _____
Predators _____ Why quick reproduction important _____

plains pocket gopher: This 9½ to 12¾", slate gray to black gopher lives almost continuously in burrows which run for several hundred feet just beneath the prairie floor. In these burrows, there are storage chambers for food, a main nest chamber and many side tunnels that lead to the roots of a plant relished by the gopher. Only rarely does the gopher surface from its burrow to search for stems and leaves to eat. The gopher has adapted certain physical traits to help it move about in its dark, narrow burrows. It has a highly sensitive tail which acts like a guide when it backs down a tunnel. Its loose skin and velvety soft fur allow it to turn around in a tight space. Its lips can close behind its front teeth, thus keeping dirt out of its mouth as it is gouging out soil or cutting roots. Maybe the most important part of its body, however, are its long, curved claws which are used to dig and push dirt from the burrows. The gopher protects itself by keeping the entrance to its burrow solidly blocked with plugs of dirt at nearly all times. For badgers and some snakes, however, this protective door is no obstacle.

Burrows located _____ Nest located _____
Where tunnel _____ How adapted to live underground _____

Defense _____ Predators _____

coyote: From its muzzle to the tip of its bushy tail, the coyote is 44-54" long. The fur along the coyote's back is grizzled gray but its breast and belly fur is whitish or cream-colored. By night, the coyote may travel many miles in search of prey, usually rabbits and mice but also birds, insects, herbs and fruits and dead animals.

striped skunk: This black and white, short-legged animal is 22-26" long. Usually at night, the skunk digs and roots into the soil where it snags mostly insects, but also mice, moles, shrews and young rabbits. The skunk fends off most enemies by shooting out a terrible smelling stream of fluid or "musk" from glands located on each side of its anus.

eastern cottontail: From its brown nose to its powder puff tail, the cottontail rabbit is 15½" to 18" long. The upper part of its body are buff to rusty brown and the under parts, except for the buff-colored throat, are white. The cottontail loves to nibble on the juicy stems of wildflowers.

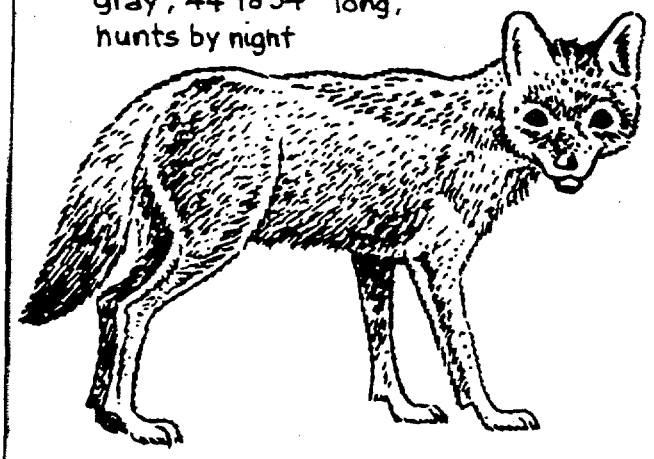
least shrew: Motivated by an insatiable appetite, this 3" brown shrew hunts both day and night for insects, worms and the dead bodies of small animals.

red fox: See description in word picture on page 96

badger: See description in word picture on page 96

Prairie Mammals

gray, 44 to 54" long, hunts by night

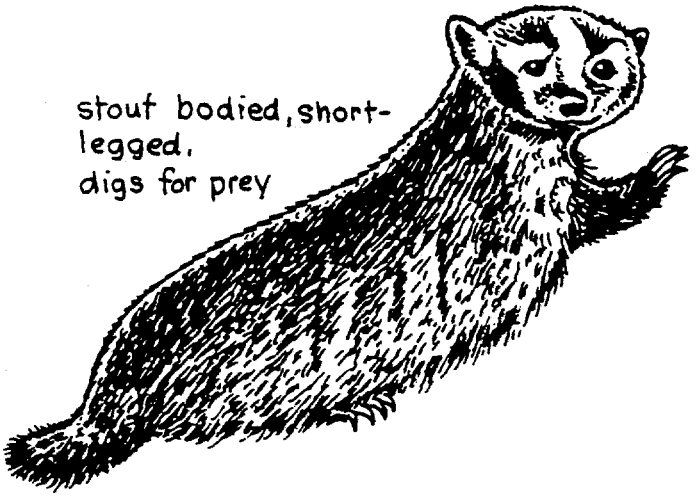


handsome, yellowish red, stalks prey by night

slate gray to black. adapted to live underground

3" long brown, travels in tiny burrows

stout bodied, short-legged, digs for prey



black and white, unusual and powerful defense strategy

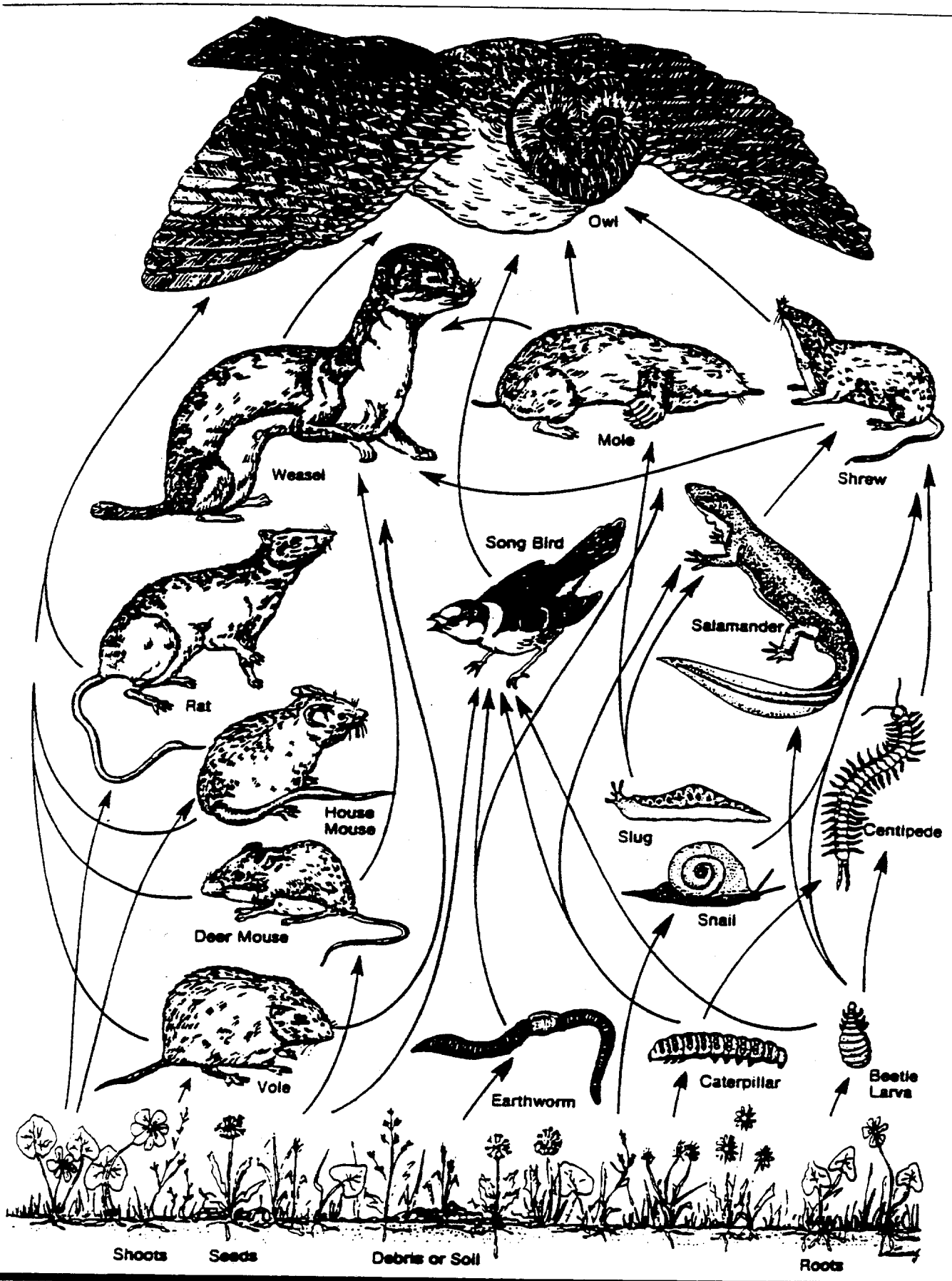
brown, guides itself by sonar system

gray with black specks, hunts by day

brownish gray, travels long surface runways

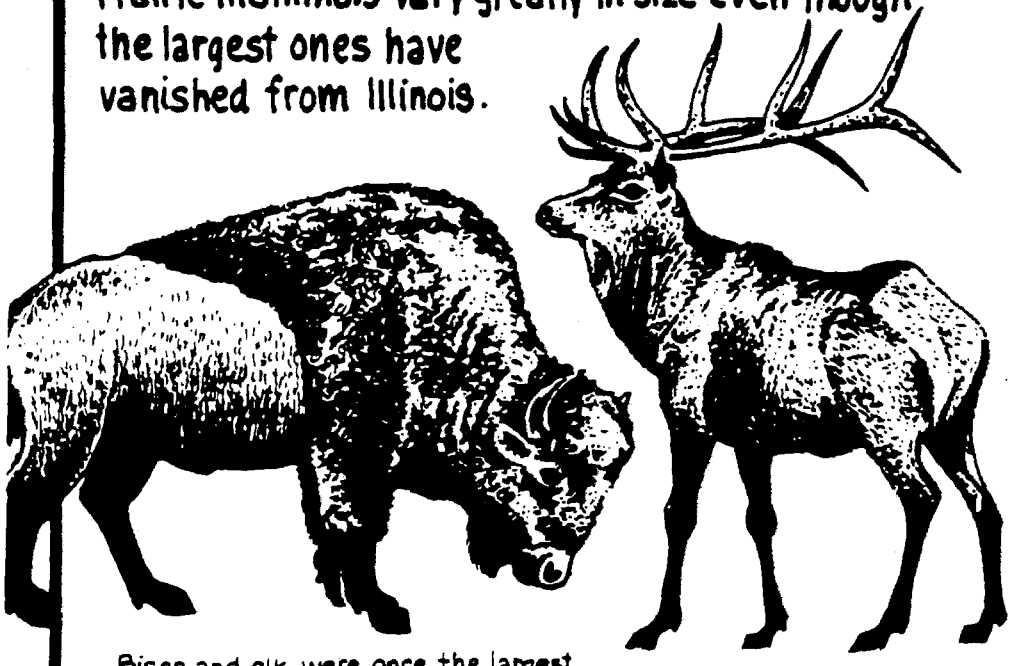
buff to rusty brown, feeds morning and late afternoon

Food Web


Owl
Weasel
Mole
Shrew
Song Bird
Salamander
Rat
House Mouse
Slug
Centipede
Deer Mouse
Snail
Vole
Earthworm
Caterpillar
Beetle Larva
Shoots
Seeds
Debris or Soil
Roots

Prairie Mammals

Prairie mammals vary greatly in size even though the largest ones have vanished from Illinois.



Bison and elk were once the largest mammals on the Illinois prairie. During settlement of Illinois, however, huge numbers of bison and elk were killed by people and the prairie was plowed up and used as farmland and cities. Without a safe habitat to live in, the mighty bison and graceful elk vanished from Illinois.

Small animals like the prairie vole and Franklin's ground squirrel are the most numerous on the prairie. Regardless of size, each mammal species has its own special place to live and role to play in the prairie ecosystem. That special place and role is the species niche in the ecosystem.

Medium-sized animals such as the coyote, fox and badger are the big mammals on the prairie that remains in Illinois.

The Role of Mammals in the Prairie Ecosystem:

Mammals are vital to the flow of food energy in the prairie ecosystem. Some mammals like the badger, coyote and red fox are most important as predators because they keep insect and rodent populations under control. Other mammals like the cottontail rabbit and prairie vole are most important as sources of food for other members of the ecosystem. Some mammals such as the little brown bat and Franklin's ground squirrel are important as both predators and prey.

You learned in the word picture at the top of this page the meaning of the word "niche". The niche of an animal is very important because it guarantees each species a place to live and food to eat. With each species having its own niche, there is less competition between species for space and food. If an animal loses its niche, it cannot survive.

FOOD CHAIN LINK NO. _____

The Franklin's ground squirrel captures an American toad. Food energy is transferred from the toad to the ground squirrel.

The word picture at the top of this page explains what happened to bison and elk once they lost their niches in Illinois.

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To define the niche of an animal, one must consider where, when and how it travels, what it eats and what eats it, when and where its young are born and what defenses it has against its predators. Although the niches of some species may be somewhat similar, they are never exactly the same. This gives each species its own special chance for survival. Let's look at the niches of the badger and red fox by studying the word pictures below.

Working with Prairie Mammals

Work Step #1. Explain why some mammals are most important as sources of food for other animals? Explain why some are most important as predators. Name two mammals that are important both as food sources and predators.

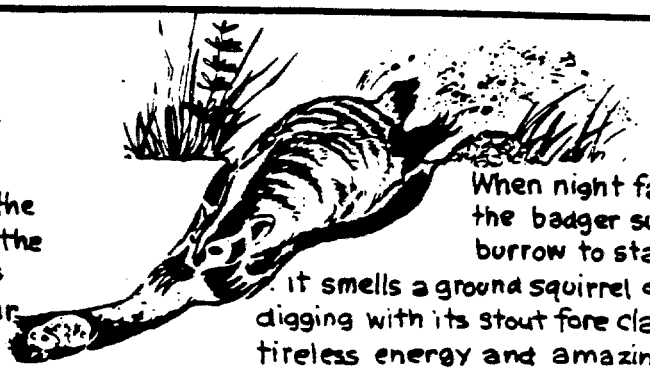
Work Step #2. On the blank lines that follow, describe the niche of the badger.
Where live Lives in burrows Where nest Nest Chamber
When active At night How catch food Stalks prey at night
food Ground squirrel/mice Predators Man

Now describe the niche of the red fox. Where rest during day Clump of grass
when active at night
where travel Prairie floor
how catch food Crouches + wiggles toward food rabbits, mice, birds, insects
where den Underground
how many litters One per year defense quick speed + cunning
predators Man

How does the niche of the badger compare to the niche of the red fox? Are they active at the same time? Both at night Do they stay in the same place on the prairie during the day? Badger-burrow fox-grass Do they catch their food in the same way? Badger-fast fox-slow Do you think the fox could survive if it had to dig for its food as the badger does? No Do you think the badger could survive if it had to stalk and pounce on its prey as the fox does? No

Work Step #3. On page 102 are descriptions for 10 mammals. Following four of the descriptions are

Short bodied and short legged, the badger lives in burrows beneath the ground. During spring it uses its burrow as a nest chamber to bear and raise its young.

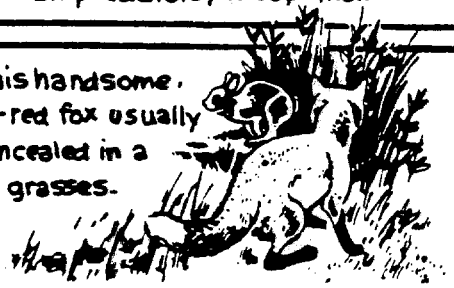


When night falls on the prairie, the badger surfaces from its burrow to stalk its prey. If it smells a ground squirrel or mouse, it begins digging with its stout fore claws. Because of its tireless energy and amazing speed, it can catch most of its prey before they can escape their burrows.

Badger

With its strength and sharp teeth and claws, the badger defends itself against all predators, except man.

By day this handsome, yellowish-red fox usually sleeps concealed in a clump of grasses.



During the nighttime hours, the fox travels the prairie floor to stalk its prey, usually rabbits and mice but also birds and insects. Once prey is spotted, the fox takes slow, deliberate steps or crouches and wiggles toward it. It then rushes its victim and kills it with a bite from its powerful jaws. In summertime, the fox also feeds on the berries of plants.

Red Fox

4-9 young foxes, called "kits" are born in March and raised in an underground den.

The fox defends itself against enemies with its quick speed and cunning. It is taken by only a few predators, including man.

blank lines referring to part of the animals niche. From what you have read about that animal, fill in the blank lines.

Work Step #4. On page 103 are illustrations of the 10 mammals described. Using the clues written beside each illustration, label the mammals.

little brown bat: The main body of this brown bat is covered with fur but the tail membrane, ears and wings are nearly free of hair. During winter, this bat hibernates in caves but come spring and summer, it takes off for a variety of habitats, including prairies. The edge of a prairie is where one might expect to find a little brown bat roosting beneath the loose bark of a tree. When the sun goes down, the bat takes wing across the open prairie to snag insects. The little brown, like all bats, guides itself by means of a sonar system. As the bat flies, it squeaks out ultrasonic sounds which cannot be heard by people. The bat hears the echoes those sounds make as they hit objects, such as a tree or bush. The bat knows then to steer clear of the tree or bush. The little brown makes no nest; instead, the young bats, born in spring, cling to the breast of the female who hangs by her hind feet in any place that affords shelter. And when the female leaves to hunt for food, the young bats hang by themselves. The little brown defends itself against predators by flying skillfully and swiftly. Sometimes, however, a hawk, owl, or weasel, will prove itself master over this bat.

Where summer roost loose bark of a tree
When active at night
Food insects
How guide itself Sonar system
Where nest no nest cling to mother
Defense flying skillfully and swiftly
Predators hawk, owl, weasel

Franklin's ground squirrel: Standing 8½-9½" tall, this ground squirrel is mostly gray in color with black specks on its back. In a prairie ecosystem, the underground burrow of the Franklin's ground squirrel would most probably be at the edge, where the prairie gives way to larger brush and eventually forest. The Franklin's spends 90% of its time in this burrow, resting at night through the warm months and hibernating during the winter. During the bright daylight hours, it quietly makes its way across the prairie feeding on grasses, and wildflowers. But it can also take animal food, including toads, frogs, insects, mice, bird eggs and even young rabbits. Four to five young ground squirrels are born about mid-May and raised in a nest chamber of the burrow. Though the Franklin protects itself by sticking close to its burrow and heavy cover, it is preyed upon by many predators including hawks and badgers.

Where burrow underground Active day
Food grasses, wildflowers Location of Nest burrow
Defense sticking close to its burrow & heavy cover
Predators hawks, badgers

prairie vole: The upper parts of this 4¾"-6" vole are mostly brownish gray and the under parts are washed with yellow or rust. Winter and summer, night and day, the prairie vole tunnels out surface runways that have been known to cover 160 feet. While traveling through these runways, usually either right at the surface of the prairie, or a few inches beneath, the vole finds bits of grasses, seeds and roots for food. These surface runways lead to deeper, underground burrows wherein the vole has a nest and storage chambers of food. Because the vole can do little to defend itself it rarely makes it past one year without being snatched by a hawk, owl or fox. Since prairie voles are so heavily preyed upon, they must reproduce quickly and in large numbers. To achieve this high rate of reproduction, the female vole produces litters of 3-6 young, throughout the year except during the coldest months. And a young female vole is ready to start a new family at the young age of 3 to 4 weeks.

Where travel runways Food grasses, seeds, roots
Nest located underground burrow
Defense little defense
Predators hawk, owl, fox Why quick reproduction important
rarely makes it past one year due to predators

plains pocket gopher: This 9½ to 12¾", slate gray to black gopher lives almost continuously in burrows which run for several hundred feet just beneath the prairie floor. In these burrows, there are storage chambers for food, a main nest chamber and many side tunnels that lead to the roots of a plant relished by the gopher. Only rarely does the gopher surface from its burrow to search for stems and leaves to eat. The gopher has adapted certain physical traits to help it move about in its dark, narrow burrows. It has a highly sensitive tail which acts like a guide when it backs down a tunnel. Its loose skin and velvety soft fur allow it to turn around in a tight space. Its lips can close behind its front teeth, thus keeping dirt out of its mouth as it is gouging out soil or cutting roots. Maybe the most important part of its body, however, are its long, curved claws which are used to dig and push dirt from the burrows. The gopher protects itself by keeping the entrance to its burrow solidly blocked with plugs of dirt at nearly all times. For badgers and some snakes, however, this protective door is no obstacle.

Burrows located ~~beneath prairie floor~~ Nest located burrow
Where tunnel _____ How adapted to live underground
loose skin, soft fur, sensitive tail, long curved claws
Defense entrance blocked Predators badgers, snakes

coyote: From its muzzle to the tip of its bushy tail, the coyote is 44-54" long. The fur along the coyote's back is grizzled gray but its breast and belly fur is whitish or cream-colored. By night, the coyote may travel many miles in search of prey, usually rabbits and mice but also birds, insects, herbs and fruits and dead animals.

striped skunk: This black and white, short-legged animal is 22-26" long. Usually at night, the skunk digs and roots into the soil where it snags mostly insects, but also mice, moles, shrews and young rabbits. The skunk fends off most enemies by shooting out a terrible smelling stream of fluid or "musk" from glands located on each side of its anus.

eastern cottontail: From its brown nose to its powder puff tail, the cottontail rabbit is 15½" to 18" long. The upper part of its body are buff to rusty brown and the under parts, except for the buff-colored throat, are white. The cottontail loves to nibble on the juicy stems of wildflowers.

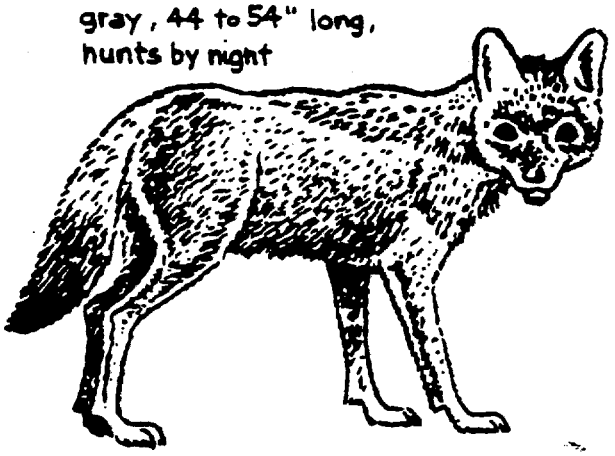
least shrew: Motivated by an insatiable appetite, this 3" brown shrew hunts both day and night for insects, worms and the dead bodies of small animals.

red fox: See description in word picture on page 101

badger: See description in word picture on page 101

Prairie Mammals

gray, 44 to 54" long, hunts by night

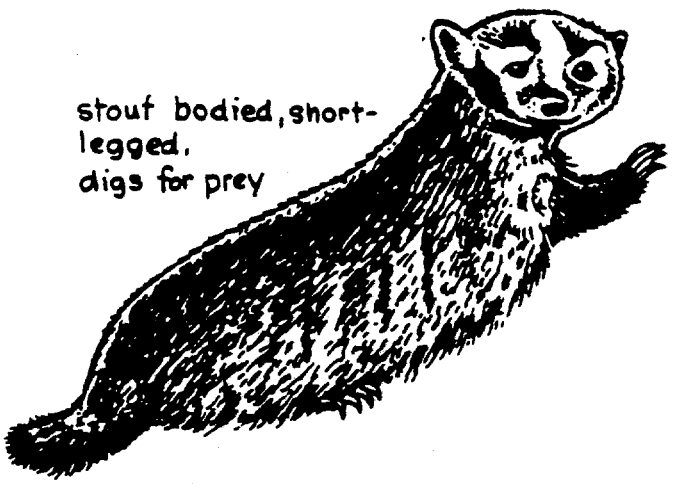


Coyote

handsome, yellowish red, stalks prey by night

red fox

stout bodied, short-legged, digs for prey



badger

slate gray to black. adapted to live underground

plains pocket gopher

3" long brown, travels in tiny burrows

least shrew

black and white, unusual and powerful defense strategy

Striped Skunk

brown, guides itself by sonar system

little brown bat

grayish gray, travels long surface runways

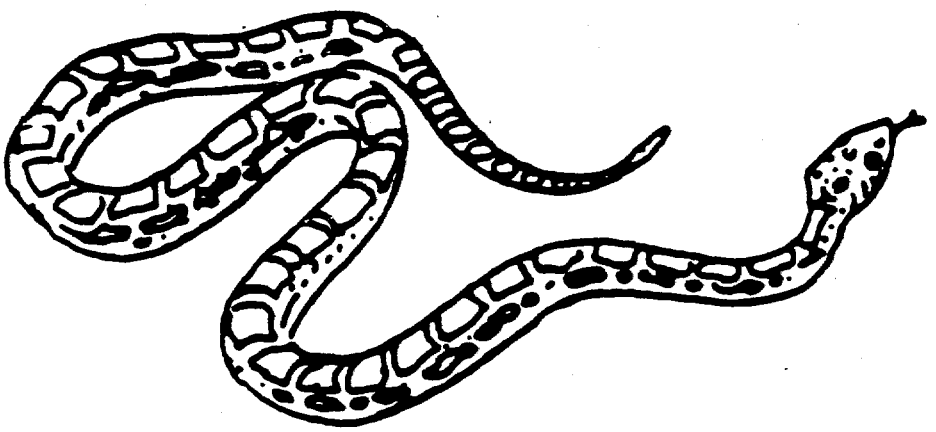
prairie vole

buff to rusty brown, feeds morning and late afternoon

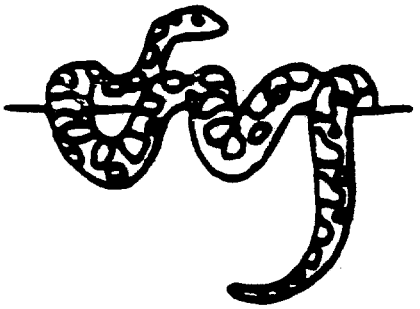
eastern Cottontail

gray with black specks, hunts by day

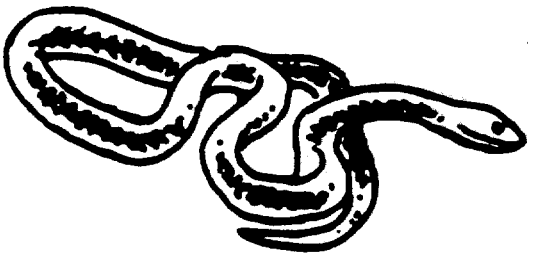
Franklin's ground squirrel



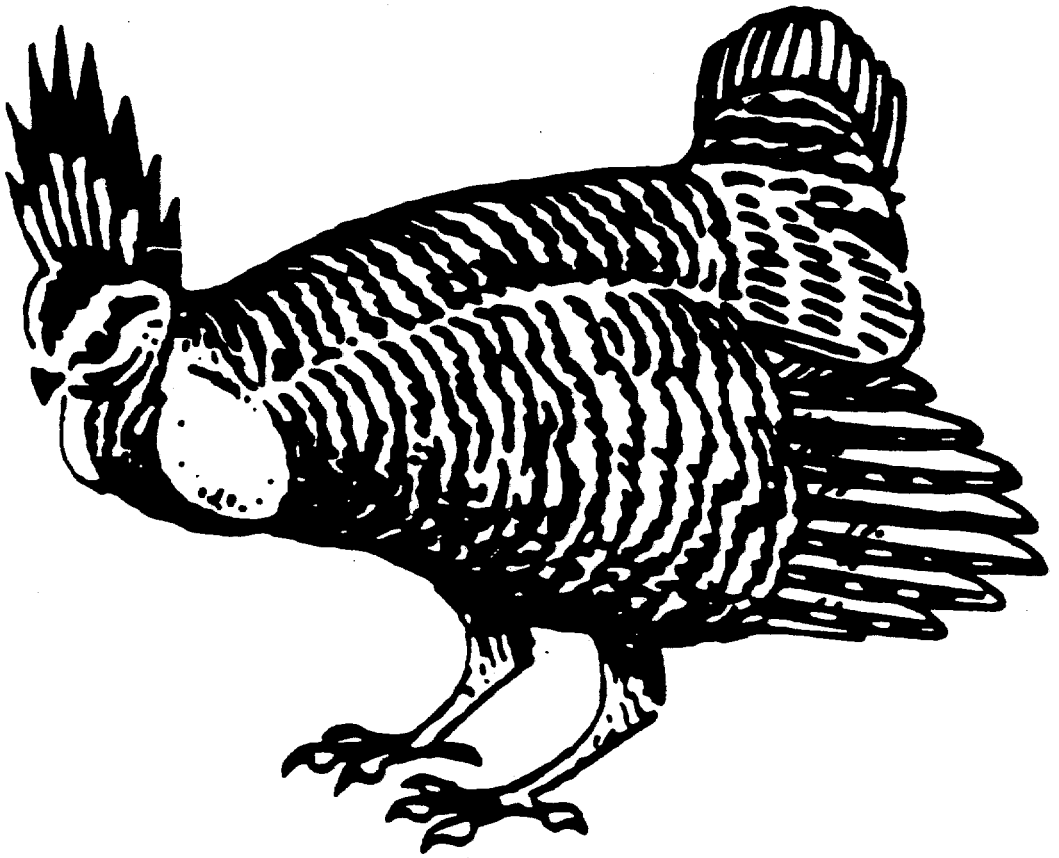
bull snake
127 - 183 cm



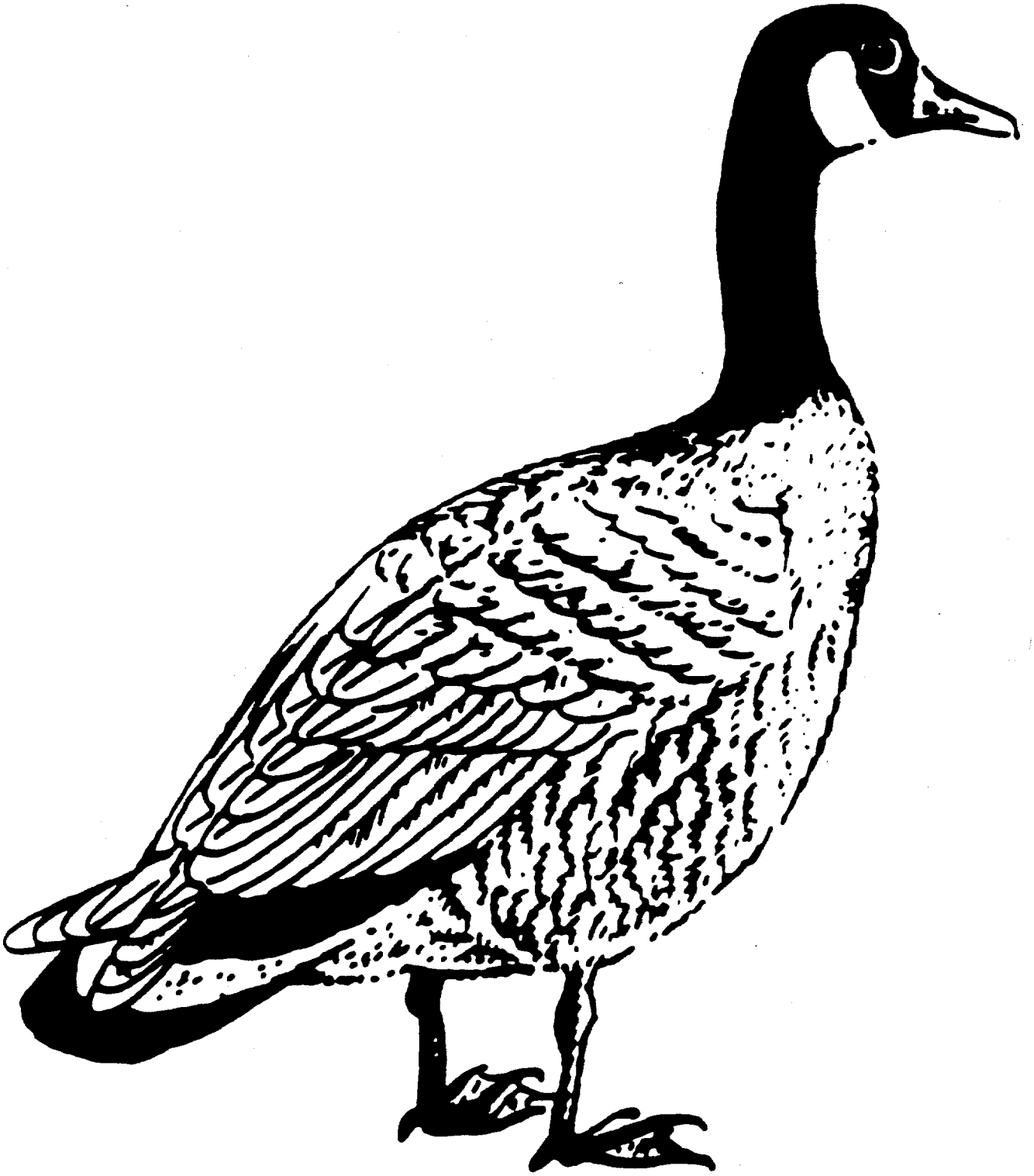
western fox snake
91 - 127 cm



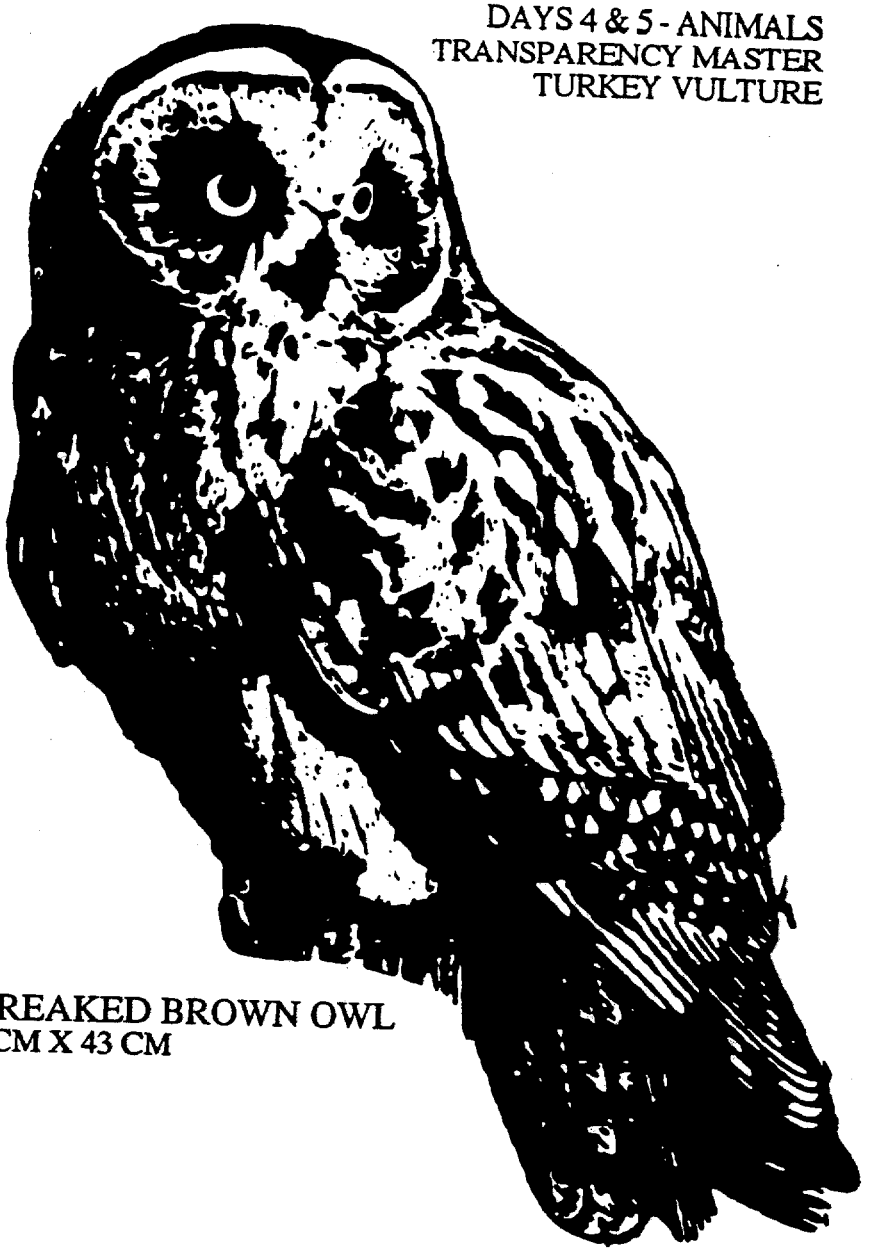
blue racer
91 - 153 cm



PRAIRIE CHICKEN
43 CM X 46 CM



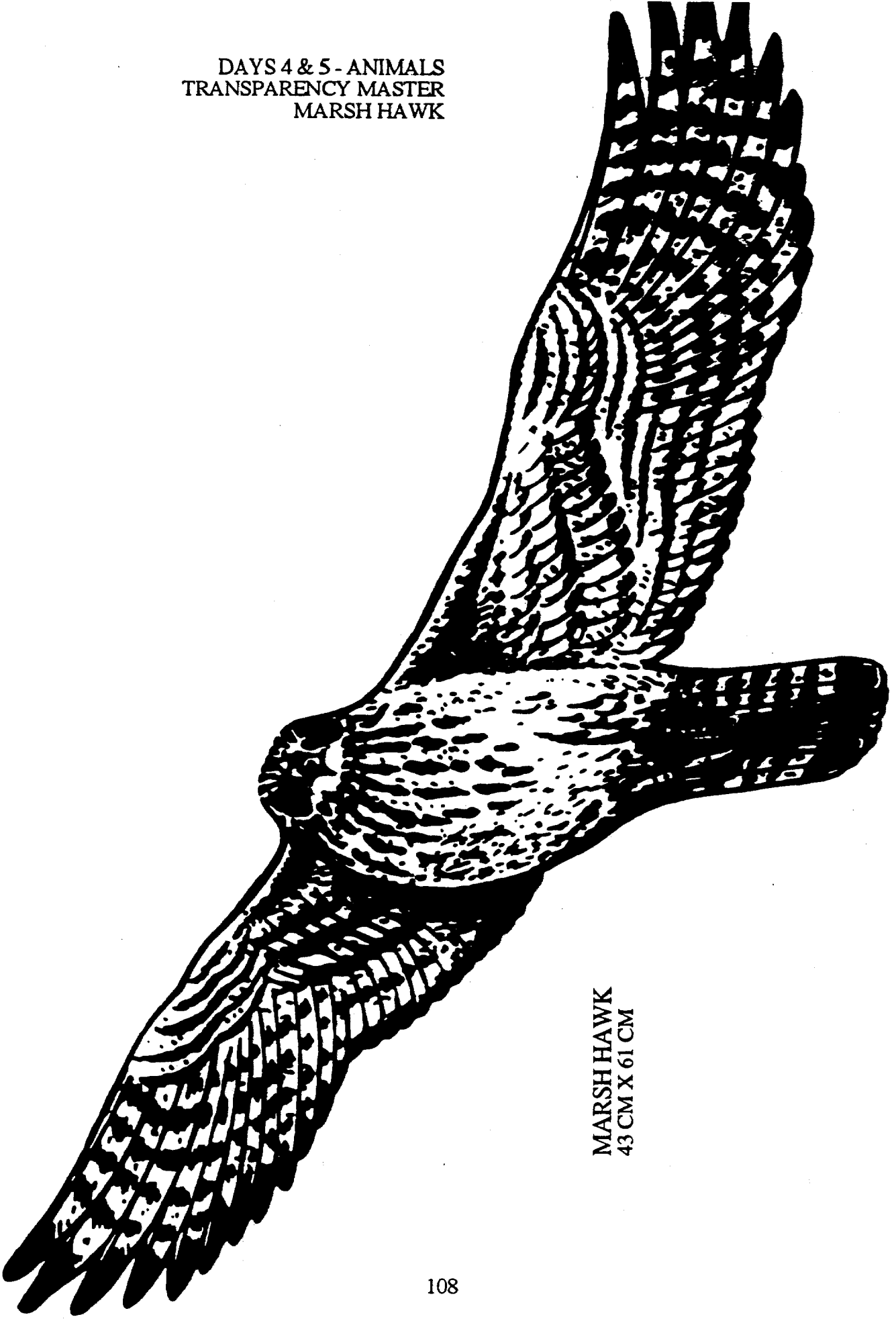
CANADA GOOSE
41 CM X 64 CM



STREAKED BROWN OWL
33 CM X 43 CM

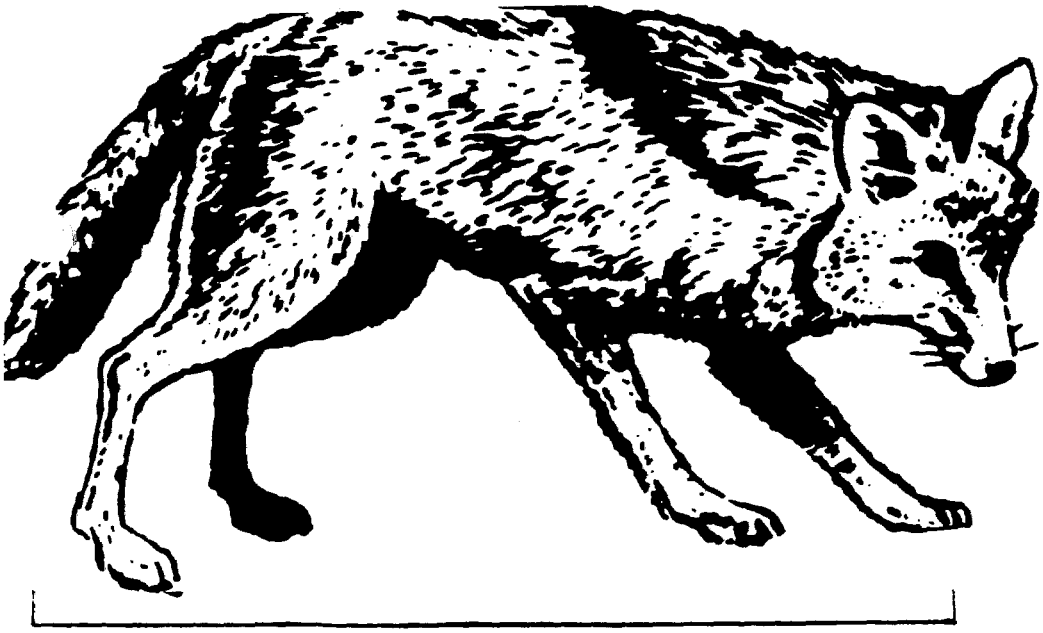
TURKEY VULTURE
66 CM X 81 CM

DAYS 4 & 5 - ANIMALS
TRANSPARENCY MASTER
MARSH HAWK



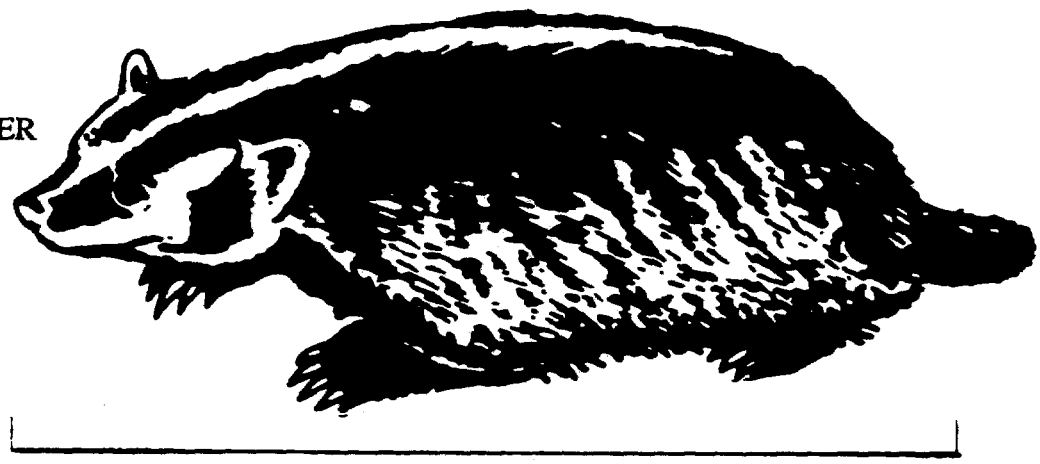
MARSH HAWK
43 CM X 61 CM

COYOTE



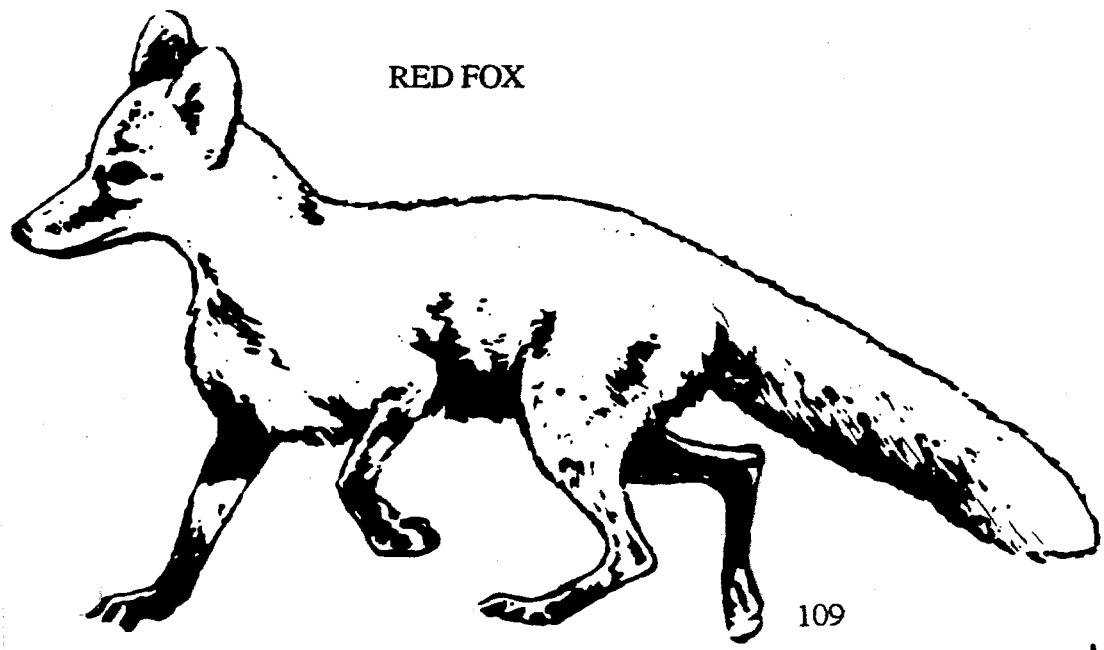
112 CM TO 137 CM

BADGER



61 CM TO 91 CM

RED FOX

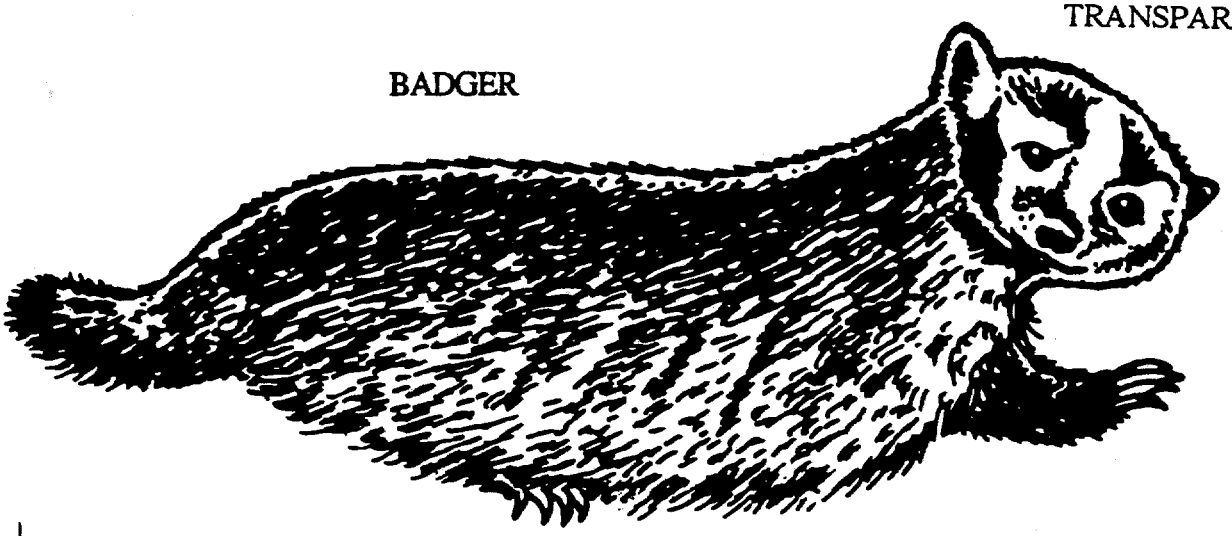


101 CM TO 107 CM

Bison

183 CM TALL

BADGER



61 CM TO 91 CM

Prairie Mole

13 CM TO 15 CM

Little Brown Bat

15 CM TO 25 CM

Least Shrew

8 CM

Striped Skunk

56 CM TO 66 CM

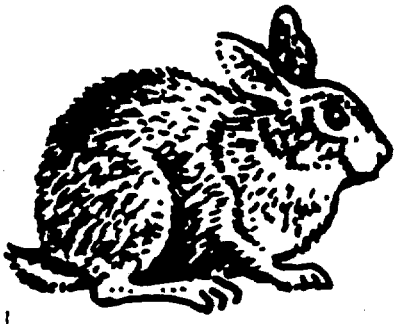
22 CM TO 24 CM

Franklin Ground Squirrel

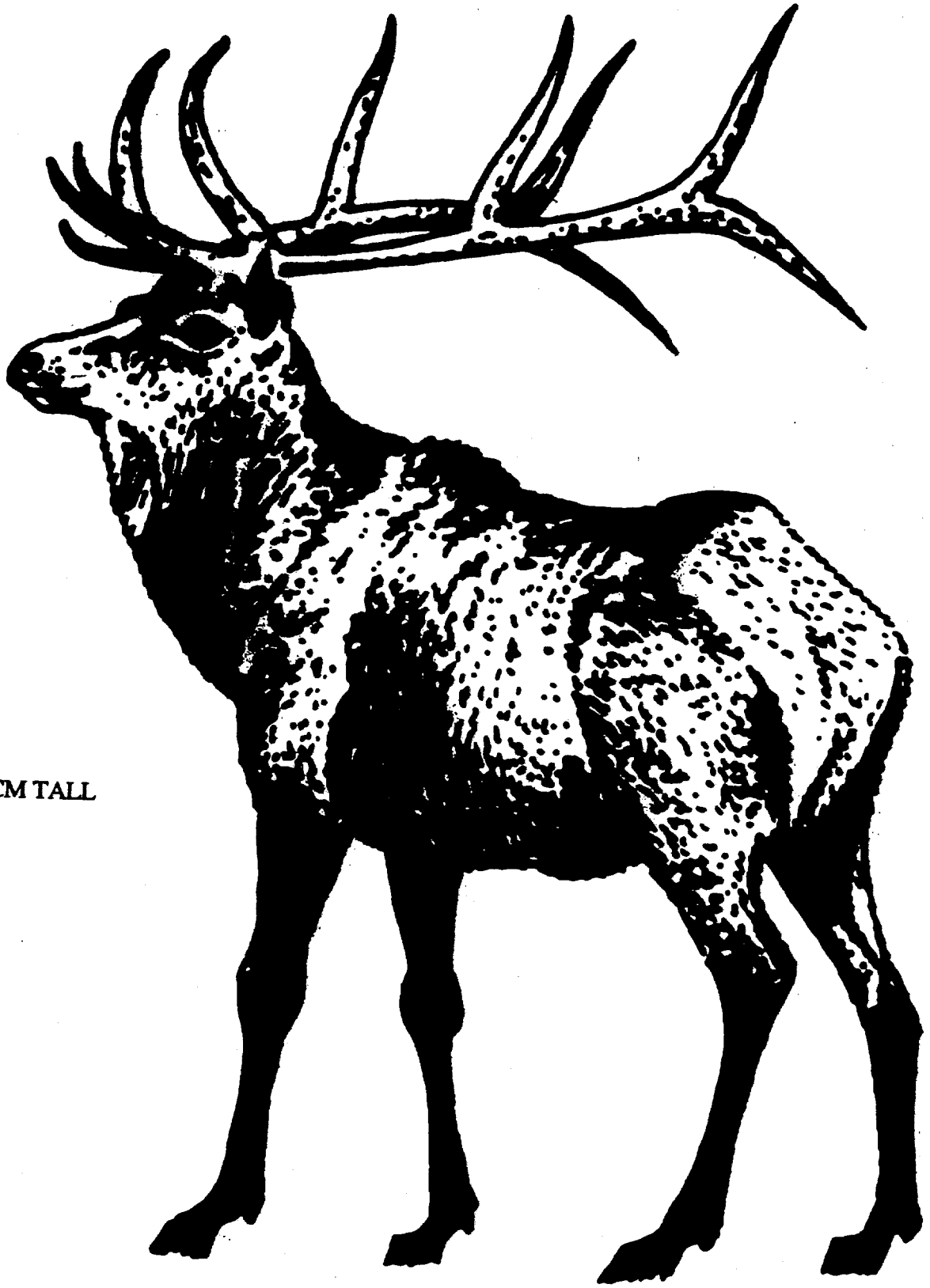
Plains Pocket Gopher

24 CM TO 32 CM

Eastern Cottontail



38 CM TO 46 CM



152 CM TALL

Elk

Gummy Worm Lab

OBJECTIVES: Using lab equipment, determine the qualitative and quantitative characteristics of a common object.

TASK A

PROCEDURE:
STEP 1. Use the chart below to describe your specimen's qualitative characteristics.

QUALITATIVE CHARACTERISTICS

COLOR	SHAPE	SMELL	TEXTURE	ELASTICITY (stretchiness)

STEP 2. In the space below make an accurate, full-size drawing of your specimen.

OBSERVATIONS:
1. How many segments does it have?

2. How can you tell the front end from the back end?

TASK B LENGTH

PROCEDURE: Use a metric ruler to carefully measure the length of your specimen. Place your answers in the spaces below.

OBSERVATIONS:

1. Which unit (m, cm, or mm) do you feel is the best measurement to use to describe the specimen? Why?

2. Does length tell you a quality or a quantity about the specimen?

TASK C CIRCUMFERENCE

PROCEDURE:

STEP 1. Take a small piece of string (2 to 5 cm long) and wrap it once around the thickness of your specimen near the top. Mark the spot where the string end meets the string again. Remove the string from around the specimen and measure the distance to the nearest millimeter and record below.

Repeat this measurement two more times, once in the middle and again near the end, and record on the chart on the next page.

LOCATION	CIRCUMFERENCE
TOP	
MIDDLE	
BOTTOM	

STEP 2. Now add the lengths of the top, middle, and bottom measurements together.

TOTAL CIRCUMFERENCES_____

STEP 3. Since you made 3 measurements, you can find the <u>average</u> circumference by dividing the total you got by 3.

= AVERAGE CIRCUMFERENCE

3 ⌐ ◄(total circumference)

OBSERVATIONS:

1. Why is the average circumference a better measurement than taking just one measurement anywhere on the specimen?

2. Instead of a string, what could we use to measure the circumference of an object faster and probably better than a string? (Hint: What do you use to measure your waist size?)

3. Is circumference a quality or quantity?

TASK D MASS

PROCEDURE: Use one of the balances to accurately measure the mass of your specimen. Place your specimen on the pan and slide the balancing masses over, starting with the heaviest mass first, until the pointer indicates it is balanced. If you move a mass over and it weighs too much, move it one position back and use the next lightest mass to try and balance it. Continue to slide the masses (heaviest to lightest) until it is balanced. To find the mass of the specimen add the indicated weights for each slide (beam) together. Place the answer below.

MASS OF SPECIMEN _____ gm.

OBSERVATIONS:
1. Is mass a quality or a quantity?

2. What does the mass of the object actually tell you?

(OPTIONAL TASK)

TASK E VOLUME BY DISPLACEMENT

PROCEDURE: Place about 20 cubic centimeters of water into a graduated cylinder. Record the exact level on the chart.

Now place your specimen into the cylinder so that it is completely submerged (under water). Record the new level of the water to the nearest cubic centimeter on the chart.

The difference between the original water level and the new level is the exact volume of your specimen. Record all measurements on the chart on the next page.

ORIGINAL WATER LEVEL	cm^3
WATER LEVEL WITH SUBMERGED SPECIMEN	cm^3
DIFFERENCE BETWEEN THE TWO READINGS (original minus specimen)	cm^3
VOLUME OF OBJECT	cm^3

OBSERVATIONS:

1. What does the volume of an object tell you about that object?

2. How do you find the volume of a regular-shaped object, like a wooden box?

3. Why do we use the displacement method to find the volume of irregular (unusual) shaped objects?

4. What would you do to find the volume of objects, like sugar, which dissolve in water?

TASK F CONCLUSION

PROCEDURE: Using the qualitative and quantitative information you have collected about your specimen in the previous tasks, write a detailed description of the specimen, using those characteristics to describe it accurately (at least a one-paragraph description).

OBSERVATIONS:

1. What does qualitative observation mean? Give an example.

2. What does quantitative observation mean? Give an example.

3. Is one of the two kinds of observations more accurate or important to know than the other? Explain.

TASK G TASTE TEST

PROCEDURE: Now that you have completed the lab investigation you have only one final test to do. You're normally not allowed to eat anything in a lab, however, with your teacher's permission, you may eat your specimen.

OBSERVATIONS: (If you were allowed to eat your specimen, please answer these questions.)

1. How does it taste?

2. Is taste a qualitative or quantitative observation?

TASK H COMPARISONS

1. How is your gummy worm like other gummy worms?

2. How is your gummy worm different from other gummy worms?

3. How are gummy worms like real earthworms?

4. How are gummy worms different from real earthworms?

5. If you had a real earthworm to study, would you treat it in the same way as you treated your gummy worm? Why or why not?

Gummy Worm Lab

TASK A

OBSERVATIONS:

1. How many segments does it have?

   Answers will vary.

2. How can you tell the front end from the back end?

   Gummy worms have small indentations like eyes in the head region and pointed tails.

TASK B LENGTH

OBSERVATIONS:

1. Which unit (m, cm, or mm) do you feel is the best measurement to use to describe the specimen? Why?

   Centimeter is the best unit to use. The worm is so much smaller than a meter using this unit would give a very inaccurate measurement. The mm is too specific and would give accuracy beyond what is necessary for this lab.

2. Does length tell you a quality or a quantity about the specimen?

   Quantity

TASK C CIRCUMFERENCE

OBSERVATIONS:

1. Why is the average circumference a better measurement than taking just one measurement anywhere on the specimen?

   Because the circumference varies slightly at different locations along the length of the gummy worm, the average is a better representation of the circumference of the worm than a single measurement taken at one place.

2. Instead of a string, what could we use to measure the circumference of an object faster and probably better than a string? (Hint: What do you use to measure your waist size?)

   A measuring tape.

3. Is circumference a quality or quantity?

   Quantity

TASK D MASS

OBSERVATIONS:

1. Is mass a quality or a quantity?

   Quantity

2. What does the mass of the object actually tell you?

   Mass is a measure of the amount of matter in an object.

TASK E VOLUME BY DISPLACEMENT

OBSERVATIONS:

1. What does the volume of an object tell you about that object?

   Volume is the amount of space occupied by a three dimensional object.

2. How do you find the volume of a regular-shaped object, like a wooden box?

   length x width x height

3. Why do we use the displacement method to find the volume of irregular (unusual) shaped objects?

   Because you cannot measure them accurately

4. What would you do to find the volume of objects, like sugar, which dissolve in water?

   You could use the same method or you could use a liquid like alcohol so the sugar would not dissolve.

TASK F CONCLUSION

OBSERVATIONS:

1. What does qualitative observation mean? Give an example.

   Qualitative observations are descriptive and can be subjective.

2. What does quantitative observation mean? Give an example.

   Quantitative observations is one which is measured and is reproducible. It is less subjective that a qualitative observation. Length is an example.

3. Is one of the two kinds of observations more accurate or important to know than the other? Explain.

   Possible answers include:
   Type of observation used depends on the item being observed and the purpose of the observation. While both are valuable, scientists rely heavily on quantitiative observations.

TASK G TASTE TEST

OBSERVATIONS: (If you were allowed to eat your specimen, please answer these questions.)

1. How does it taste?

   Answers will vary.

2. Is taste a qualitative or quantitative observation?

   Qualitative

TASK H COMPARISONS

OBSERVATIONS:

1. How is your gummy worm like other gummy worms?

   Shape, size, texture, elasticity, mass will be similar.

2. How is your gummy worm different from other gummy worms?

   Color and taste may be different.

3. How are gummy worms like real earthworms?

   Shape and size are similar; both are smooth and slimy.

4. How are gummy worms different from real earthworms?

   Answers may include: Color, taste, gummy worms are not alive, earthworm head does not have eye indentations, earthworms feel more moist.

5. If you had a real earthworm to study, would you treat it in the same way as you treated your gummy worm? Why or why not?

   Answers will vary.

The Right Words

Quiz games are often good ways to build vocabularies, and to encourage the use of the exact word for the exact meaning. If followed up with discussion, trips, reading, etc., they will stimulate interest and satisfy it, too.

These quizzes can be turned around and played in many different ways. For example, the leader might say, "If the baby deer is a fawn, and its father is a buck, what is its mother?" Or "A cub and a vixen live in a den. What is the name of the cub's father?" Or "You've heard of peas in a pod. What animal group is called a pod?"

Animal Groups

Players learn and use the correct words for groups of animals, such as:

sheep (flock)
bees (swarm, colony, hive)
ants (colony)
porpoises (school)
fish (school, run, shoal)
whales (gam, school, herd)
cattle (herd, drove)
seals (pod, herd)

Animals (Male and Female)

lion (lioness)
ram (ewe)
stallion (mare)
gander (goose)
drake (duck)
tiger (tigress)
stag (hind)
bull (cow)
buck (doe)
dog (bitch)
boar (sow)
fox (vixen)
billygoat (nannygoat)

Animal Sounds

What is the word for the sound each animal makes?

lions (roar)
wild geese (honk)
sheep (bleat)
hens (cackle, cluck)
cows (moo, low)
cocks (crow)
donkeys (bray)
pigs (squeal)
geese (gaggle, gabble)
ducks (quack)
frogs (croak)
wolves (howl)
doves (coo)
crows (caw)
elephants (trumpet)
snakes (hiss)
owls (hoot, screech)

Animal Homes

dogs (kennel)
chickens (coop)
sheep (fold, pen)
pigs (sty)
lions (lair, den)
bees (hives)
beavers (lodge)
pigeons (dovecote)
cows (barn, byre, cow shed)
rabbits (hutch, warren, burrow)

Animal Babies

lion (cub)
duck (duckling)
dog (puppy)
horse (foal)
cat (kitten)
hog (shoat)
bear (cub)
frog (tadpole)
mare (filly, foal)
elephant (calf)
seal (calf)
deer (fawn)
goose (gosling)
whale (calf)
swan (cygnet)
bird (nestling)
goat (kid)
bull (bullock)
cow (heifer)
fox (cub)

DEER STALKING

A very successful and exciting game, depending upon silence for its suspense.

One person is the Deer, another the Hunter. Each is blindfolded and placed at opposite ends of a large table. The Hunter must try to catch the Deer, and the Deer tries to avoid being caught. Neither can go beyond touch of the table, and neither should make a sound.

The others watch in complete silence; no laughing or whispering. If the Deer and Hunter can go barefoot, it's even better.

CREATIVE WRITING

Anticipatory Set: Let's rest awhile and give you an opportunity to be creative.

Purpose: Having an active imagination will help you get through the day and also will train you for the future wherever you work.

Input: Write a story, four paragraphs long containing four sentences each, about a topic which is not a real-life situation, but requires the development of an imagination.

Suggested topics: You are a . . . .

rock
leaf
deer during hunting season
cloud

Model: I was just minding my own business when this huge block of ice 1 mile high scooped me up and took me hundreds of miles from my home -Kidnapped, I was--held for ransom, I thought

Checking for Understanding: Who am I? What is happening?

Guided Practice: Go around the group and finish the story.

Independent Practice: Write your own story.

PANTOMIME OF NATURE OBJECTS

Anticipatory Set: "We're going to do something you will really enjoy."

Purpose: To encourage, develop, and improve creativity.

Input: Pretend that you are an object in nature. Sometimes you will be alone and other times in groups of two or three. You will be given time to talk it over, but while you are presenting it, you can't make any noises or talk.

Modeling: Give an example yourself--act it out--sun, earth, tree, water, grass, cattle, earth, tree, etc.

Checking for Understanding: Ask for questions.

Guided Practice: Choose one student to do one.

Independent Practice: Give each student a topic--have them think of what to do and then do it. Do as many as you feel are necessary.

V.I.P.'S IN NATURE

Set: Locate a likely looking spot which could be used as some animal's, bird's, or bug's home. Ask who might live in it?

Objective: The students will be able to identify an animal's niche, describe it and tell how the animal contributes to his community.

Purpose: That all animals and other things in nature have a purpose and a place.

Input: Use the terminology "niche" as the animal's home and describe it as best as you can. Use the term community to mean his outer environment and how he is important to the community.

Model: Continue using the example used in the Set. Describe the animal's niche and then his part in the community.

Check: Review my example with the group by asking pointed questions and check the group for consensus.

Individual and Guided Practice: Allow the students to investigate the area and locate some spot that could be where an animal might have a home. Name the animal and give its niche and describe its part in the community.